

Appendix M
Cost Estimates for
Alternatives Evaluated in
the Feasibility Study

APPENDIX M

COST ESTIMATES FOR WAG 9 SITES

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COST ESTIMATE SUPPORT DATA RECAPITULATION

I. **SCOPE OF WORK:** *Brief description of the proposed project.*

Prepare Rough Order Magnitude Planning Cost Estimates for comparison of retained remediation alternatives for the following sites:

- ANL-01, Industrial Waste Pond and Ditches A, B, & C
- ANL-01A, Main Cooling Tower Blowdown Ditch
- ANL-04, Sewage Lagoons
- ANL-09, Interceptor Canal
- ANL-35, Industrial Lift Station Discharge Ditch

The following remediation activities were retained for the detailed analysis for one or all of the above listed sites:

No Action

Containment With Engineered Barrier

Excavation/On-Site Disposal at INEEL Soil Repository

Excavation/Off-Site Disposal at Private facility

Phytoremediation

III. **ASSUMPTIONS:** *Condition statements accepted or supposed true without proof or demonstration. An assumption has a direct impact on total estimated cost.*

- (1) Estimates assume that equipment can work on the existing areas without any modifications to the equipment and that construction activities are somewhat normal.
- (2) Estimates assume that the site is free from restrictions and other obstacles that could limit construction activities.
- (3) These estimates assume normal working conditions as would be present during summer construction. No overtime or weather protection has been included.
- (4) No provisions were made for an on-site subcontractor to do this work. It is assumed that this work will be competitively bid with established heavy construction subcontractors.
- (5) These estimates assume that no leveling course or fill to grade material will be required prior to installation of either Engineered Barriers or Caps.
- (6) These estimates assume that all capping and fill materials can be obtained at the INEEL.

- (7) It is assumed that crushed basalt can be manufactured on-site by breaking down rip-rap with a dozer and sheepsfoot.
- (8) All work will be completed by a fixed-fee subcontractor and expendable equipment costs are a part of the subcontract price. The hourly rate of the construction workers with adders is assumed to be \$75 per hour. The construction crew is assumed to have five equipment operators. The volume of material moved per hour is estimated to be 20 cubic yards per hour (2 dump trucks) for the crew and assumes that the travel time is included. Thus, the hours needed for the construction activity is the total volume per activity divided by the worked by the 20 cubic yards per hour rate.
- (9) Mobilization and demobilization costs were based on a set charge of \$5,000 per each. Included are operators, trucks, dozer, graders and loaders, which may work in a number of combinations. Also, if the capping activities can be conducted in series or parallel for the sites at ANL-W would require only one mobilization and demobilization charges.
- (10) It is assumed that the scale house and loading station at the railhead will be existing. No costs are included for construction of these items.
- (11) All work is assumed similar in complexity from site to site. It is assumed that all site encumbrances will be cleared prior to any remediation activities.
- (12) The volumes reflected in the cost estimates are the same as the ones reported in the Comprehensive Remedial Investigation/Feasibility Study Report. No additional quantities for slope, swell, angle of repose during excavation have been accounted for.
- (13) The area of contamination is defined for each site in the RI/FS. No additional removal of contaminated soil that could be identified during verification sampling has been included in these cost estimates.
- (14) The costs for monitoring were taken from similar activities being performed by the ANL-W Environmental Restoration Group. Annual reviews were estimated to take 40 hours to complete. The five year review activity was estimated to require 80 hours of effort.
- (15) WAG Management and Oversight costs were estimated in assumptions 23, 24 and 25.
- (16) It is assumed that to ship to an off-site disposal facility there will be an existing contract in place through DOE. No costs have been included to negotiate contracts other than normal procurement fees.
- (17) It is assumed the capital and O & M activities for all the options will be performed

by the ER program personnel. O & M activities are assumed to be 100 years for all options.

- (18) Envirocare was used as a representative off-site disposal facility. Costs to ship to Envirocare were taken from quotes from Envirocare and existing work being conducted with Envirocare of Utah. These costs could increase or decline in the future.
- (19) Remedial Action (RA) costs were escalated using the recommended DOE escalation rates to the mid-point of that activity. One hundred year maintenance costs were escalated for each year of maintenance and discounted at the recommended rate of 5% to Present Value (PV).
- (20) All options use a cost of \$75/CY with indirects and contingency for getting the materials to either the Railhead for shipping to an off-site disposal facility. Included is excavation, loading surveys, hauling, weighing and unloading at each of the sites.
- (21) General assumptions were used throughout and were applied consistently to all alternatives.
- (22) FFA/CO Management costs were estimated based on previous, similar INEEL ER projects, obtained from previous work scopes. FFA/CO management costs account for management oversight of planning, active remediation, long term monitoring and institutional controls. Assumptions developed to estimate FFA/CO costs are further detailed in Assumptions 23 and 24.
- (23) One FTE (Full-Time Equivalent) is assumed for the active period of remediation, which is assumed to be one to three years depending on project complexity. A burdened rate of \$125,000 per year was used for one FTE.
- (24) One quarter (0.25) FTE is assumed for project management for the inactive period, including long-term monitoring and institutional control which includes the total O & M period. The burdened rate of \$31,250 was used for one quarter FTE.
- (25) Hourly rate for engineering support from ANL-W ER personnel is \$100 per hour and includes cost of benefits. ANL-W ER personnel will prepare all reports including Safety Assessments, Health and Safety, Sampling and Analysis, Validation, annual, and five year reviews with in-house personnel.
- (26) If selected, remedial Alternatives (3a, 4a, and 4b) would be conducted in Summer and Fall of 1999. Also, if remedial Alternative 5 is selected, bench-scale testing would be completed in FY 98 and the first plants would be grown in FY 98, testing of how phytoremediation is working would be conducted in FY 99.
- (27) Capital costs include all costs associated with the implementation of a remedial

alternative. These costs are above and beyond those costs of continued operation and maintenance of the ANL-W Environmental Restoration program.

- (28) Operation and maintenance costs include those costs of continued operation of the ANL-W Environmental Restoration program. These are the costs of continued monitoring and maintenance of groundwater monitoring wells, posting of signs around release sites, and program oversight.
- (29) Remedial Alternatives 3a, 4a, and 4b are scheduled to begin in FY 99 and be completed in FY 99. Thus, the cost for these activities will be escalated one year using the 5%. The present value of these alternatives is the same as the costs for FY 98 because of the 5% inflation rate and time-value-of-money.
- (30) Alternative 5 is estimated to take five years to complete and the costs are estimated in today's dollars to complete all five years of work. The costs were not escalated (5% per year) because one contract would be issued to complete all of the field seasons (5 years).
- (31) Costs for Alternative 1 (no action) are the same for all sites. No reduction in costs are assumed by consolidation of costs for cleanup of more than one site.
- (32) Operation and Maintenance costs associated with Alternatives 1 and 3a were assumed to require 20 years of WAG 9 support, 100 years of annual monitoring, and 20 (5-year reports).
- (33) Operation and Maintenance costs associated with Alternatives 4a, 4b, and 4c were assumed to require 5 years of WAG 9 support, 20 years of annual monitoring, and 20 (5-year reports).
- (34) Costs for the phytoremediation were based on surface area of each contaminated site.
- (35) Costs associated with rail transportation are on a \$10 per ton basis. The volume of contaminated soil was multiplied by the specific gravity (2.5 tons/cubic yard).
- (36) Costs for the private tipping fee for off-site disposal of contaminated soil was assumed to be \$350 per cubic yard.
- (37) Costs for the INEEL Soil Repository tipping fee for contaminated soil was assumed to be \$15 per cubic yard.
- (38) Revegetation costs are assumed to be \$1 per square foot for each site. Revegetation would consist of native plant species on the INEEL.

COMPARISON SUMMARY COSTS FOR ALL SITES AND ALTERNATIVES

Project OU 9-04 FS COST ESTIMATES
Site All Sites Comparison Summary
Alternative All Remedial Alternatives

Date 9/4/97
Prep'd By Scott Lee

ANL-W SITE	Alternative 1 No Action	Alternative 3a Engineered (SL-1-Type) Cover	Alternative 4a Excavation and Disposal at INEEL Soil Repository	Alternative 4b Excavation and Disposal at Private Facility	Alternative 5 PhytoRemediation
ANL-01-Industrial Waste Pond	\$954,269.66	\$1,699,639.10	\$926,158.27	\$1,359,491.60	\$1,072,704.38
ANL-01-Ditch A, B, and C	\$954,269.66	\$1,149,117.99	\$684,069.38	\$840,069.38	\$630,054.38
ANL-01A-Main Cooling Tower Blowdown Ditch	\$954,269.66	\$1,128,623.49	\$674,796.05	\$820,396.05	\$613,381.88
ANL-04-Sewage Lagoons	\$954,269.66	\$2,491,019.16	\$1,567,289.38	\$2,908,889.38	\$1,337,182.88
ANL-09-Interceptor Canal Ditch	\$954,269.66	\$4,229,579.03	\$3,591,844.38	\$8,037,844.38	\$1,083,941.26
ANL-09-Interceptor Canal Mound	\$954,269.66	\$1,556,610.21	\$1,047,491.60	\$1,740,824.94	\$707,664.38
ANL-35-Industrial Waste Discharge Ditch	\$954,269.66	\$1,042,185.77	\$597,980.49	\$632,647.16	\$593,004.38

SUMMARY COST ESTIMATE SHEET

Project OJ 9-04 FS COST ESTIMATES
 Site ANL-01-Industrial Waste Pond
 Alternative All Remedial Alternatives

Date
 Prep'd By Scott Lee

9/4/97

Description	Alternative 1 No Action	Alternative 3a Engineered (SL-1-Type) Cover	Alternative 4a Excavation and Disposal at INEEL Soil Repository	Alternative 4b Excavation and Disposal at Private Facility	Alternative 5 PhytoRemediation
CAPITAL COSTS					
TOTAL CAPITAL COST IN FY98 DOLLARS	NA	\$745,369.44	\$390,613.89	\$823,947.22	\$537,160.00
TOTAL CAPITAL COST IN ESCALATED DOLLARS (5%/yr)	NA	\$782,637.92	\$410,144.58	\$865,144.58	\$564,018.00
TOTAL CAPITAL COST IN NET PRESENT VALUE	NA	\$745,369.44	\$390,613.89	\$823,947.22	\$537,160.00
OPERATIONS AND MAINTENANCE COSTS					
WAG 9 SUPPORT IN FY98 DOLLARS/YR	\$40,625.00		\$40,625.00	\$40,625.00	\$40,625.00
WAG 9 SUPPORT IN ESCALATED DOLLARS	\$1,343,304.39	\$1,343,304.39	\$224,478.77	\$224,478.77	\$224,478.77
WAG 9 SUPPORT IN NET PRESENT VALUE	\$506,211.30	\$506,211.30	\$175,884.99	\$175,884.99	\$175,884.99
MONITORING COST IN FY98 DOLLARS/YR	\$11,960.00	\$11,960.00	\$11,960.00	\$11,960.00	\$11,960.00
MONITORING COST IN ESCALATED DOLLARS	\$31,215,900.88	\$31,215,900.88	\$395,468.81	\$395,468.81	\$395,468.81
MONITORING COST NET PRESENT VALUE	\$237,381.01	\$237,381.01	\$149,048.04	\$149,048.04	\$149,048.04
5-YEAR REVIEW COST IN FY98 DOLLARS/YR	\$16,900.00	\$16,900.00	\$16,900.00	\$16,900.00	\$16,900.00
5-YEAR REVIEW COST IN ESCALATED DOLLARS	\$558,814.62	\$558,814.62	\$558,814.62	\$558,814.62	\$558,814.62
5-YEAR REVIEW COST NET PRESENT VALUE	\$210,611.35	\$210,611.35	\$210,611.35	\$210,611.35	\$210,611.35
TOTAL O&M COST IN NET PRESENT VALUE	\$954,269.66	\$954,269.66	\$535,544.38	\$535,544.38	\$535,544.38
TOTAL PROJECT COST IN NET PRESENT VALUE	\$954,270	\$1,699,639	\$926,158	\$1,359,492	\$1,072,704

DETAILED COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES
 Site ANL-01, INDUSTRIAL WASTE POND
 Alternative 3A, CONTAINMENT WITH SL-1 ENGINEERED BARRIER

Date 9/4/97
 Prep'd By Scott Lee

DESCRIPTION	MAT'L UNIT	UNIT COST	UNIT LAB HRS	LAB RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	3		30	75	6,750			6,750
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	15	100				1,500		1,500
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Excavation Permit	1		4	125	500			500
RCRA Subtitle D Landfill Apl.	1		40	125	5,000			5,000
TOTAL TITLE DESIGN PACKAGE								18,000

CONSTRUCTION SUBCONTRACT	L=	L	W=	D=	CY=	MATERIAL COST	OTHER COST	TOTAL COST
CONSTRUCTION SUBCONTRACT								
Mob & Demobilization	1	10,000				10,000		10,000
Volume of Contaminated Soil		200					925.93	925.93
Construction of Base	925.93	75				69444.44		69444.44
Density Testing of Base			8	125	1000			1000
Soil Removal	925.93	75				69444.44		69444.44
Backfill Site to Grade	925.93	75				69444.44		69444.44
Revegetation (square feet)	50000	1				50000		50000
CAP								
RIP -RAP 24" cy	3,704	8	185.19	75	69,444	29,630		99,074
Gravel Layer 8 cy	1,241	15	62.04	75	23,264	18,611		41,875
Cobble 12" cy	1,852	17	92.59	75	34,722	31,481		66,204
Gravel Layer 8 cy	1,241	15	62.04	75	23,264	18,611		41,875

WAG 9 Construction oversight	1	80	125	10,000	10000
ACCESS RESTRICTION FENCING					
6' Security Fence - 1 Gate	900	25		22,500	22,500
Surface Water Diversion	900	5		4,500	4,500
TOTAL CONSTRUCTION					555,361

SUM CAPITAL COSTS					
Design & Construction Total					573,361
ANL-W ADDER	30 %				172,008
TOTAL CAPITAL COSTS 97 DOLLARS					745,369

OPERATIONS AND MAINTENANCE

WAG 9 Support					
20 years of ER Personnel	0.25			31,250	31,250
ANL-W ADDER	30 %				9,375
SUPPORT ANNUAL COST					40,625

MONITORING					
Sampling and Monitoring /yr	2	16	100	1,600	1,600
Maintenance Inspection /yr	2	16	100	1,600	1,600
Report Preparation /yr	1	60	100	6,000	6,000
ANL-W ADDER	30 %				2,760
MONITORING ANNUAL COST					11,960

5-Year Review Report					
Report Preparation by ANL-W	1	120	100	12,000	13,000
ANL-W ADDER	30 %				3,900
5-YEAR REPORT COST					16,900

100-YEAR LONG TERM COSTS					
WAG 9 Support (20 years)	20	40,625			812,500
Annual Cost (100 YRS)	100	11,960			1,196,000
5-Year Review Cost (20 TIMES)	20	16,900			338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS					2,346,500

DETAILED COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES
 Site ANL-01, INDUSTRIAL WASTE POND
 Alternative 4a, EXCAVATION AND DISPOSAL AT INEEL SOIL REPOSITORY

Date 9/4/97
 Prep'd By Scott Lee

DESCRIPTION	MATERIAL		UNIT LAB HRS	LABOR RATE	LABOR COST	MATERIAL COST	OTHER COST	TOTAL COST
	UNIT	COST						
CAPITAL COSTS								
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	3		20	75	4,500			4,500
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	15	100				1,500		1,500
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Excavation Permit	1		4	125	500			500
Waste Acceptance Report to LIMITCO	1		60	125	7,500			7,500
TOTAL TITLE DESIGN PACKAGE								18,250

CONSTRUCTION SUBCONTRACT								
Mob & Demobilization	1	10,000				10,000		10,000
Volume of Contaminated Soil	L=	200	W=	250	D=	0.5	CY=	925.93
Soil Removal		925.93				69444.44		69444.44
Soil Transport to INEEL Repository		925.93				69444.44		69444.44
Tipping Fee LIMITCO/cy		925.93				13888.89		13888.89
Backfill Site to Grade		925.93				69444.44		69444.44
Revegetation (square feet)	50000	1				50000		50000

ACCESS RESTRICTION FENCING					
6' Security Fence - 1 Gate	NA			0	
Surface Water Diversion	NA			0	
TOTAL CONSTRUCTION					282,222

SUM CAPITAL COSTS					
Design & Construction Total					300,472
ANL-W ADDER	30 %				90,142
TOTAL CAPITAL COSTS 97 DOLLARS					390,614

OPERATIONS AND MAINTENANCE

WAG 9 Support					
20 years of ER Personnel	0.25	125,000			31,250
ANL-W ADDER	30 %				9,375
SUPPORT ANNUAL COST					40,625

MONITORING					
Sampling and Monitoring /yr	2	8	16	100	1,600
Maintenance Inspection /yr	2	8	16	100	1,600
Report Preparation /yr	1	60	60	100	6,000
ANL-W ADDER	30 %				2,760
MONITORING ANNUAL COST					11,960

5-Year Review Report					
Report Preparation by ANL-W	1	120	120	100	12,000
ANL-W ADDER	30 %				3,900
5-YEAR REPORT COST					16,900

100-YEAR LONG TERM COSTS					
WAG 9 Support (5 years)	5	40,625			203,125
Annual Cost (20 YRS)	20	11,960			239,200
5-Year Review Cost (20 TIMES)	20	16,900			338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS					780,325

DETAILED COST ESTIMATE SHEET

Project: OU 9-04 FS COST ESTIMATES
 Date: 9/4/97
 Site: ANL-01, INDUSTRIAL WASTE POND
 Prep'd By: Scott Lee
 Alternative: 4b, EXCAVATION AND DISPOSAL AT PRIVATE FACILITY

Project: OU 9-04 FS COST ESTIMATES
 Date: 9/4/97
 Site: ANL-01, INDUSTRIAL WASTE POND
 Prep'd By: Scott Lee
 Alternative: 4b, EXCAVATION AND DISPOSAL AT PRIVATE FACILITY

DESCRIPTION	MATERIAL		TOTAL LAB HRS	LABOR RATE	LABOR COST	OTHER COST	TOTAL COST
	MAT'L UNIT	UNIT COST					
CAPITAL COSTS							
DESIGN PROCUREMENT PACKAGE							
Siting and Surveying	3		20	75	4,500		4,500
Final Design Bid Package	1		8	125	1,000		1,000
Safety Analysis Report	1		10	125	1,250		1,250
Verification sampling plan	1		8	125	1,000		1,000
Verification Sample Costs	15	100				1,500	1,500
Safe Work Permit	1		4	125	500		500
Radiation Work Permit	1		4	125	500		500
Excavation Permit	1		4	125	500		500
Waste Acceptance Report to LMITCO	1		60	125	7,500		7,500
TOTAL TITLE DESIGN PACKAGE							18,250

CONSTRUCTION SUBCONTRACT							
Mob & Demobilization	1	10,000					10,000
Volume of Contaminated Soil	L=	200	W=	250	D=	0.5	925.93
Soil Removal		925.93					69444.44
Soil Transport to Rail Yard		925.93					69444.44
Rail Transport Cost/ton		2314.815					23148.15
Tipping Fee Private Co./cy		925.93					324074.1
Backfill Site to Grade		925.93					69444.44
Revegetation (square feet)		50000				50000	50000

ACCESS RESTRICTION FENCING			
6' Security Fence - 1 Gate	NA		0
Surface Water Diversion	NA		0
TOTAL CONSTRUCTION			615,556

SUM CAPITAL COSTS			
Design & Construction Total			633,806
ANL-W ADDER	30 %		190,142
TOTAL CAPITAL COSTS 97 DOLLARS			823,947

OPERATIONS AND MAINTENANCE

WAG 9 Support			
20 years of ER Personnel	0.25	125,000	31,250
ANL-W ADDER	30 %		9,375
SUPPORT ANNUAL COST			40,625

MONITORING			
Sampling and Monitoring /yr	2	1R	1,600
Maintenance Inspection /yr	2	16	1,600
Report Preparation /yr	1	60	6,000
ANL-W ADDER	30 %		2,760
MONITORING ANNUAL COST			11,960

5-Year Review Report			
Report Preparation by ANL-W	1	120	1,000
ANL-W ADDER	30 %		3,900
5-YEAR REPORT COST			16,900

100-YEAR LONG TERM COSTS			
WAG 9 Support (5 years)	5	40,625	203,125
Annual Cost (20 YRS)	20	11,960	239,200
5-Year Review Cost (20 TIMES)	20	16,900	338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS			780,325

DETAILED COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES
 Site ANL-01, INDUSTRIAL WASTE POND
 Alternative 5, PHYTOREMEDIATION

Date 9/4/97
 Prep'd By Scott Lee

DESCRIPTION	MAT'L		UNIT LAB HRS	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
	MAT'L UNIT	UNIT COST						
CAPITAL COSTS								
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	1		16	75	1,200			1,200
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	30	100				3,000		3,000
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Digging Permit	1		4	125	500			500
Waste Acceptance Report to LIMITCO	1		40	125	5,000			5,000
TOTAL TITLE DESIGN PACKAGE								13,950
PHYTO SUBCONTRACT								
Specialized Equipment one time cost	1	8,000				8,000		8,000
Volume of Contaminated Soil	L=	200	W=	D=	0.5		CY=	925.93
Prepare Soil for Planting			125	60	7500			7500
Planting/growing season			125	60	7500			7500
Irrigating/growing season			250	60	15000			15000
Fertilize/growing season			62.5	60	3750			3750
Cutting/growing season			125	60	7500			7500
Bailing/growing season			125	60	7500			7500
Rad Survey/growing season			25.00	125	3125			3125
Transport to INEEL Incinerator/growing season			125.00	60	7500			7500
TOTAL FIRST YEAR PHYTO COSTS								67,375
ADDITIONAL FOUR YEAR PHYTO COSTS								237,500

ACCESS RESTRICTION FENCING					
6' Security Fence - 1 Gate	900	25		22,500	22,500
Surface Water Diversion	900	5		4,500	4,500
TOTAL FIVE YEAR PHYTO					399,250

SUM CAPITAL COSTS	
Design & Phyto Total	413,200
ANL-W ADDER	123,960
TOTAL CAPITAL COSTS 97 DOLLARS	537,160

OPERATIONS AND MAINTENANCE

WAG 9 Support					
20 years of ER Personnel	0.25	125,000		31,250	31,250
ANL-W ADDER	30 %				9,375
SUPPORT ANNUAL COST					40,625

MONITORING					
Sampling and Monitoring /yr	2	8	16	100	1,600
Maintenance Inspection /yr	2	8	16	100	1,600
Report Preparation /yr	1	60	60	100	6,000
ANL-W ADDER	30 %				2,760
MONITORING ANNUAL COST					11,960

5-Year Review Report					
Report Preparation by ANL-W	1	120	120	100	13,000
ANL-W ADDER	30 %				3,900
5-YEAR REPORT COST					16,900

100-YEAR LONG TERM COSTS					
WAG 9 Support (5 years)	5	40,625			203,125
Annual Cost (20 YRS)	20	11,960			239,200
5-Year Review Cost (20 TIMES)	20	16,900			338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS					780,325

SUMMARY COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES
 Site ANL-01-Ditch A, B, and C
 Alternative All Remedial Alternatives

Date 9/4/97
 Prep'd By Scott Lee

Description	Alternative 1 No Action	Alternative 3a Engineered (SL-1-Type) Cover	Alternative 4a Excavation and Disposal at INEEL Soil Repository	Alternative 4b Excavation and Disposal at Private Facility	Alternative 5 PhytoRemediation
CAPITAL COSTS					
TOTAL CAPITAL COST IN FY98 DOLLARS	NA	\$194,848.33	\$148,525.00	\$304,525.00	\$94,510.00
TOTAL CAPITAL COST IN ESCALATED DOLLARS (5%/yr)	NA	\$204,590.75	\$155,951.25	\$319,751.25	\$99,235.50
TOTAL CAPITAL COST IN NET PRESENT VALUE	NA	\$194,848.33	\$148,525.00	\$304,525.00	\$94,510.00
OPERATIONS AND MAINTENANCE COSTS					
WAG 9 SUPPORT IN FY98 DOLLARS/yr	\$40,625.00	\$40,625.00	\$40,625.00	\$40,625.00	\$40,625.00
WAG 9 SUPPORT IN ESCALATED DOLLARS	\$1,343,304.39	\$1,343,304.39	\$224,478.77	\$224,478.77	\$224,478.77
WAG 9 SUPPORT IN NET PRESENT VALUE	\$506,277.30	\$506,277.30	\$175,884.99	\$175,884.99	\$175,884.99
MONITORING COST IN FY98 DOLLARS/yr	\$11,960.00	\$11,960.00	\$11,960.00	\$11,960.00	\$11,960.00
MONITORING COST IN ESCALATED DOLLARS	\$31,215,900.88	\$31,215,900.88	\$395,468.81	\$395,468.81	\$395,468.81
MONITORING COST NET PRESENT VALUE	\$237,381.01	\$237,381.01	\$149,048.04	\$149,048.04	\$149,048.04
5-YEAR REVIEW COST IN FY98 DOLLARS/yr	\$16,900.00	\$16,900.00	\$16,900.00	\$16,900.00	\$16,900.00
5-YEAR REVIEW COST IN ESCALATED DOLLARS	\$558,814.62	\$558,814.62	\$558,814.62	\$558,814.62	\$558,814.62
5-YEAR REVIEW COST NET PRESENT VALUE	\$210,611.35	\$210,611.35	\$210,611.35	\$210,611.35	\$210,611.35
TOTAL O&M COST IN NET PRESENT VALUE	\$954,269.66	\$954,269.66	\$535,544.38	\$535,544.38	\$535,544.38
TOTAL PROJECT COST IN NET PRESENT VALUE	\$954,270	\$1,149,118	\$684,069	\$840,069	\$630,054

DETAILED COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES
 Site ANL-01, DITCH A, B, AND C
 Alternative 3A, CONTAINMENT WITH SL-1 ENGINEERED BARRIER

Date 9/4/97
 Prep'd By Scott Lee

DESCRIPTION	MAT'L		UNIT LAB HRS	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
	UNIT	COST						
CAPITAL COSTS								
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	3		30	75	6,750			6,750
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	15	100				1,500		1,500
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Excavation Permit	1		4	125	500			500
RCRA Subtitle D Landfill Apl.	1		40	125	5,000			5,000
TOTAL TITLE DESIGN PACKAGE								18,000

CONSTRUCTION SUBCONTRACT								
Mob & Demobilization	1	10,000				10,000		10,000
Volume of Contaminated Soil	L=	1200	W=	5	D=	1.5	CY=	333.33
Construction of Base	333.33	75		8	125	1000		25000
Density Testing of Base	333.33	75					25000	1000
Soil Removal	333.33	75					25000	25000
Backfill Site to Grade	6000	1					6000	25000
Revegetation (square feet)								6000
CAP								
RIP -RAP 24" cy	444	8	22.22	111.11	75	8,333	3,556	11,889
Gravel Layer 8 cy	149	15	7.44	37.22	75	2,792	2,233	5,025
Cobble 12" cy	222	17	11.11	55.56	75	4,167	3,778	7,944

Gravel Layer 8 cy	149	15	7.44	37.22	75	2,792	2,233	5,025
WAG 9 Construction oversight	1			80	125	10,000		10000
ACCESS RESTRICTION FENCING								
6' Security Fence - 1 Gate	NA	25						0
Surface Water Diversion	NA	5						0
TOTAL CONSTRUCTION								131,883

SUM CAPITAL COSTS								
Design & Construction Total								149,883
ANL-W ADDER	30 %							44,965
TOTAL CAPITAL COSTS 97 DOLLARS								194,848

OPERATIONS AND MAINTENANCE

WAG 9 Support								
20 years of ER Personnel	0.25		125,000			31,250		31,250
ANL-W ADDER	30 %							9,375
SUPPORT ANNUAL COST								40,625

MONITORING								
Sampling and Monitoring /yr	2	8	16	100	100	1,600		1,600
Maintenance Inspection /yr	2	8	16	100	100	1,600		1,600
Report Preparation /yr	1	60	60	100	100	6,000		6,000
ANL-W ADDER	30 %							2,760
MONITORING ANNUAL COST								11,960

5-Year Review Report								
Report Preparation by ANL-W	1	120	120	100	100	12,000	1,000	13,000
ANL-W ADDER	30 %							3,900
5-YEAR REPORT COST								16,900

100-YEAR LONG TERM COSTS								
WAG 9 Support (20 years)	20	40,625				812,500		812,500
Annual Cost (100 YRS)	100	11,960				1,196,000		1,196,000
5-Year Review Cost (20 TIMES)	20	16,900				338,000		338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS								2,346,500

DETAILED COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES Date 9/4/97
 Site ANL-01, DITCH A, B, AND C Prep'd By Scott Lee
 Alternative 4a, EXCAVATION AND DISPOSAL AT INEEL SOIL REPOSITORY

DESCRIPTION	MATERIAL		UNIT LAB HRS	TOTAL LAB HRS	LABOR RATE	LABOR COST	MATERIAL COST	OTHER COST	TOTAL COST
	MAT'L UNIT	UNIT COST							
CAPITAL COSTS									
DESIGN PROCUREMENT PACKAGE									
Siting and Surveying	3		20	60	75	4,500			4,500
Final Design Bid Package	1			8	125	1,000			1,000
Safety Analysis Report	1			10	125	1,250			1,250
Verification sampling plan	1			8	125	1,000			1,000
Verification Sample Costs	15	100					1,500		1,500
Safe Work Permit	1			4	125	500			500
Radiation Work Permit	1			4	125	500			500
Excavation Permit	1			4	125	500			500
Waste Acceptance Report to LMITCO	1			60	125	7,500			7,500
TOTAL TITLE DESIGN PACKAGE									18,250
CONSTRUCTION SUBCONTRACT									
Mob & Demobilization	1	10,000					10,000		10,000
Volume of Contaminated Soil	L=	1200	W=	5	D=	1.5	CY=	333.33	
Soil Removal	333.33	75					25000		25000
Soil Transport to INEEL Repository	333.33	75					25000		25000
Tipping Fee LMITCO/cy	333.33	15					5000		5000
Backfill Site to Grade	333.33	75					25000		25000
Revegetation (square feet)	6000	1					6000		6000

ACCESS RESTRICTION FENCING			
6' Security Fence - 1 Gate	NA		0
Surface Water Diversion	NA		0
TOTAL CONSTRUCTION			96,000

SUM CAPITAL COSTS			
Design & Construction Total			114,250
ANL-W ADDER	30 %		34,275
TOTAL CAPITAL COSTS 97 DOLLARS			148,525

OPERATIONS AND MAINTENANCE

WAG 9 Support			
20 years of ER Personnel	0.25	125,000	31,250
ANL-W ADDER	30 %		9,375
SUPPORT ANNUAL COST			40,625

MONITORING			
Sampling and Monitoring /yr	2	16	100
Maintenance Inspection /yr	2	16	100
Report Preparation /yr	1	60	100
ANL-W ADDER	30 %		2,760
MONITORING ANNUAL COST			11,960

5-Year Review Report			
Report Preparation by ANL-W	1	120	100
ANL-W ADDER	30 %		3,900
5-YEAR REPORT COST			16,900

100-YEAR LONG TERM COSTS			
WAG 9 Support (5 years)	5	40,625	203,125
Annual Cost (20 YRS)	20	11,960	239,200
5-Year Review Cost (20 TIMES)	20	16,900	338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS			780,325

DETAILED COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES
 Site ANL-01, DITCH A, B, AND C
 Alternative 4b, EXCAVATION AND DISPOSAL AT PRIVATE FACILITY

Date 9/4/97
 Prep'd By Scott Lee

DESCRIPTION	MAT'L		UNIT LAB HRS	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
	UNIT	COST						
CAPITAL COSTS								
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	3		20	60	75	4,500		4,500
Final Design Bid Package	1			8	125	1,000		1,000
Safety Analysis Report	1			10	125	1,250		1,250
Verification sampling plan	1			8	125	1,000		1,000
Verification Sample Costs	15	100						1,500
Safe Work Permit	1			4	125	500		500
Radiation Work Permit	1			4	125	500		500
Excavation Permit	1			4	125	500		500
Waste Acceptance Report to LMITCO	1			60	125	7,500		7,500
TOTAL TITLE DESIGN PACKAGE								18,250
CONSTRUCTION SUBCONTRACT								
Mob & Demobilization	1	10,000						10,000
Volume of Contaminated Soil	L=	1200	W=	5	D=	1.5	CY=	333.33
Soil Removal	333.33							25000
Soil Transport to Rail Yard	333.33							25000
Rail Transport Cost/ton	833.3333							8333.333
Tipping Fee Private Co./cy	333.33	350						116666.7
Backfill Site to Grade	333.33	75						25000
Revegetation (square feet)	6000	1						6000

ACCESS RESTRICTION FENCING			
6' Security Fence - 1 Gate	NA		0
Surface Water Diversion	NA		0
TOTAL CONSTRUCTION			216,000

SUM CAPITAL COSTS			
Design & Construction Total			234,250
ANL-W ADDER	30 %		70,275
TOTAL CAPITAL COSTS 97 DOLLARS			304,525

OPERATIONS AND MAINTENANCE

WAG 9 Support				
20 years of ER Personnel	0.25	125,000	31,250	31,250
ANL-W ADDER	30 %			9,375
SUPPORT ANNUAL COST				40,625

MONITORING					
Sampling and Monitoring /yr	2	8	16	100	1,600
Maintenance Inspection /yr	2	8	16	100	1,600
Report Preparation /yr	1	60	60	100	6,000
ANL-W ADDER	30 %				2,760
MONITORING ANNUAL COST					11,960

5-Year Review Report					
Report Preparation by ANL-W	1	120	120	100	12,000
ANL-W ADDER	30 %				1,000
5-YEAR REPORT COST					13,000
					3,900
					16,900

100-YEAR LONG TERM COSTS					
WAG 9 Support (5 years)	5	40,625			203,125
Annual Cost (20 YRS)	20	11,960			239,200
5-Year Review Cost (20 TIMES)	20	16,900			338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS					780,325

DETAILED COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES
 Site ANL-01, DITCH A, B, AND C
 Alternative 5, PHYTOREMEDIATION

Date 9/4/97
 Prep'd By Scott Lee

DESCRIPTION	MAT'L		UNIT LAB HRS	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
	UNIT	COST						
CAPITAL COSTS								
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	1		16	75	1,200			1,200
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	30	100				3,000		3,000
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Digging Permit	1		4	125	500			500
Waste Acceptance Report to LMITCO	1		40	125	5,000			5,000
TOTAL TITLE DESIGN PACKAGE								13,950
PHYTO SUBCONTRACT								
Specialized Equipment one time cost	1	8,000				8,000		8,000
Volume of Contaminated Soil	L=	1200	W=	D=	1.5	CY=	333.33	
Prepare Soil for Planting			15	60	900			900
Planting/growing season			15	60	900			900
Irrigating/growing season			30	60	1800			1800
Fertilize/growing season			7.5	60	450			450
Cutting/growing season			15	60	900			900
Baling/growing season			15	60	900			900
Rad Survey/growing season			3.00	125	375			375
Transport to INEEL incinerator/growing season			15.00	60	900			900
TOTAL FIRST YEAR PHYTO COSTS								15,125

ADDITIONAL FOUR YEAR PHYTO COSTS				4		28,500
ACCESS RESTRICTION FENCING						
6' Security Fence - 1 Gate	NA		25			0
Surface Water Diversion	NA		5			0
TOTAL FIVE YEAR PHYTO						58,750

SUM CAPITAL COSTS						
Design & Phyto Total						72,700
ANL-W ADDER	30 %					21,810
TOTAL CAPITAL COSTS 97 DOLLARS						94,510

OPERATIONS AND MAINTENANCE

WAG 9 Support						
20 years of ER Personnel	0.25	125,000			31,250	31,250
ANL-W ADDER	30 %					9,375
SUPPORT ANNUAL COST						40,625

MONITORING						
Sampling and Monitoring /yr	2	8	16	100	1,600	1,600
Maintenance Inspection /yr	2	8	16	100	1,600	1,600
Report Preparation /yr	1	60	60	100	6,000	6,000
ANL-W ADDER	30 %					2,760
MONITORING ANNUAL COST						11,960

5-Year Review Report						
Report Preparation by ANL-W	1	120	120	100	12,000	13,000
ANL-W ADDER	30 %					3,900
5-YEAR REPORT COST						16,900

100-YEAR LONG TERM COSTS						
WAG 9 Support (5 years)	5	40,625				203,125
Annual Cost (20 YRS)	20	11,960				239,200
5-Year Review Cost (20 TIMES)	20	16,900				338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS						780,325

SUMMARY COST ESTIMATE SHEET

Project: OU 9-04 FS COST ESTIMATES
 Site: ANL-01A-Main Cooling Tower Blowdown Ditch
 Alternative: All Remedial Alternatives

Date: 9/4/97
 Prep'd By: Scott Lee

Description	Alternative 1 No Action	Alternative 3a Engineered (SL-1-Type) Cover	Alternative 4a Excavation and Disposal at INEEL Soil Repository	Alternative 4b Excavation and Disposal at Private Facility	Alternative 5 PhytoRemediation
CAPITAL COSTS					
TOTAL CAPITAL COST IN FY98 DOLLARS	NA	\$174,353.83	\$139,251.67	\$284,851.67	\$77,837.50
TOTAL CAPITAL COST IN ESCALATED DOLLARS (5%/yr)	NA	\$183,071.53	\$146,214.25	\$299,094.25	\$81,729.38
TOTAL CAPITAL COST IN NET PRESENT VALUE	NA	\$174,353.83	\$139,251.67	\$284,851.67	\$77,837.50
OPERATIONS AND MAINTENANCE COSTS					
WAG 9 SUPPORT IN FY98 DOLLARS/YR	\$40,625.00	\$40,625.00	\$40,625.00	\$40,625.00	\$40,625.00
WAG 9 SUPPORT IN ESCALATED DOLLARS	\$1,343,304.39	\$1,343,304.39	\$224,478.77	\$224,478.77	\$224,478.77
WAG 9 SUPPORT IN NET PRESENT VALUE	\$506,277.30	\$506,277.30	\$175,884.99	\$175,884.99	\$175,884.99
MONITORING COST IN FY98 DOLLARS/YR	\$11,960.00	\$11,960.00	\$11,960.00	\$11,960.00	\$11,960.00
MONITORING COST IN ESCALATED DOLLARS	\$31,215,900.88	\$31,215,900.88	\$395,468.81	\$395,468.81	\$395,468.81
MONITORING COST NET PRESENT VALUE	\$237,381.01	\$237,381.01	\$149,048.04	\$149,048.04	\$149,048.04
5-YEAR REVIEW COST IN FY98 DOLLARS/YR	\$16,900.00	\$16,900.00	\$16,900.00	\$16,900.00	\$16,900.00
5-YEAR REVIEW COST IN ESCALATED DOLLARS	\$558,814.62	\$558,814.62	\$558,814.62	\$558,814.62	\$558,814.62
5-YEAR REVIEW COST NET PRESENT VALUE	\$210,611.35	\$210,611.35	\$210,611.35	\$210,611.35	\$210,611.35
TOTAL O&M COST IN NET PRESENT VALUE	\$954,269.66	\$954,269.66	\$535,544.38	\$535,544.38	\$535,544.38
TOTAL PROJECT COST IN NET PRESENT VALUE	\$954,270	\$1,128,623	\$674,796	\$820,396	\$613,382

DETAILED COST ESTIMATE SHEET

Project: OU 9-04 FS COST ESTIMATES
 Site: ANL-01A, MAIN COOLING TOWER BLOWDOWN DITCH
 Alternative: 3A, CONTAINMENT WITH SL-1 ENGINEERED BARRIER

Date: 9/4/97
 Prep'd By: Scott Lee

DESCRIPTION	MAT'L		UNIT LAB HRS	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
	UNIT	COST						
CAPITAL COSTS								
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	3		30	75	6,750			6,750
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	15	100				1,500		1,500
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Excavation Permit	1		4	125	500			500
RCRA Subtitle D Landfill Apl.	1		40	125	5,000			5,000
TOTAL TITLE DESIGN PACKAGE								18,000

CONSTRUCTION SUBCONTRACT								
Mob & Demobilization	1	10,000				10,000		10,000
Volume of Contaminated Soil	L=	700	W=	6	D=	2	CY=	311.11
Construction of Base	311.11	75		8	125	1000		23333.33
Density Testing of Base	311.11	75				23333.33		23333.33
Soil Removal	311.11	75				23333.33		23333.33
Backfill Site to Grade	4200	1				4200		4200
Revegetation (square feet)								
CAP								
RIP -RAP 24" cy	311	8	15.56	77.78	75	5,833	2,489	8,322
Gravel Layer 8 cy	104	15	5.21	26.06	75	1,954	1,563	3,518
Cobble 12" cy	156	17	7.78	38.89	75	2,917	2,644	5,561
Gravel Layer 8 cy	104	15	5.21	26.06	75	1,954	1,563	3,518

WAG 9 Construction oversight	1	80	125	10,000	10000
ACCESS RESTRICTION FENCING					
6' Security Fence - 1 Gate	NA	25			0
Surface Water Diversion	NA	5			0
TOTAL CONSTRUCTION					116,118

SUM CAPITAL COSTS					
Design & Construction Total					134,118
ANL-W ADDER	30 %				40,236
TOTAL CAPITAL COSTS 97 DOLLARS					174,354

OPERATIONS AND MAINTENANCE

WAG 9 Support					
20 years of ER Personnel	0.25	125,000	31,250		31,250
ANL-W ADDER	30 %				9,375
SUPPORT ANNUAL COST					40,625

MONITORING					
Sampling and Monitoring /yr	2	15	100	1,600	1,600
Maintenance Inspection /yr	2	16	100	1,600	1,600
Report Preparation /yr	1	60	100	6,000	6,000
ANL-W ADDER	30 %				2,760
MONITORING ANNUAL COST					11,960

5-Year Review Report					
Report Preparation by ANL-W	1	120	100	12,000	1,000
ANL-W ADDER	30 %				3,900
5-YEAR REPORT COST					16,900

100-YEAR LONG TERM COSTS					
WAG 9 Support (20 years)	20	40,625			812,500
Annual Cost (100 YRS)	100	11,960			1,196,000
5-Year Review Cost (20 TIMES)	20	16,900			338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS					2,346,500

DETAILED COST ESTIMATE SHEET

Project: OU 9-04 FS COST ESTIMATES
 Site: ANL-01A, MAIN COOLING TOWER BLOWDOWN DITCH
 Alternative: 4a, EXCAVATION AND DISPOSAL AT INEEL SOIL REPOSITORY

Date: 9/4/87
 Prep'd By: Scott Lee

DESCRIPTION	MATERIAL		UNIT LAB HRS	LABOR RATE	LABOR COST	MATERIAL COST	OTHER COST	TOTAL COST
	MAT'L UNIT	UNIT COST						
CAPITAL COSTS								
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	3		20	75	4,500			4,500
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	15	100				1,500		1,500
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Excavation Permit	1		4	125	500			500
Waste Acceptance Report to LIMITCO	1		60	125	7,500			7,500
TOTAL TITLE DESIGN PACKAGE								18,250

CONSTRUCTION SUBCONTRACT								
Mob & Demobilization	1	10,000				10,000		10,000
Volume of Contaminated Soil	L=	700	W=	6	D=	2	CY=	311.11
Soil Removal		311.11				23333.33		23333.33
Soil Transport to INEEL Repository		311.11				23333.33		23333.33
Tipping Fee LIMITCO/cy		311.11				4666.667		4666.667
Backfill Site to Grade		311.11				23333.33		23333.33
Revegetation (square feet)		4200				4200		4200

ACCESS RESTRICTION FENCING			
6' Security Fence - 1 Gate	NA	0	0
Surface Water Diversion	NA	0	0
TOTAL CONSTRUCTION			88,867

SUM CAPITAL COSTS			
Design & Construction Total		107,117	
ANL-W ADDER	30 %	32,135	
TOTAL CAPITAL COSTS 97 DOLLARS			139,252

OPERATIONS AND MAINTENANCE

WAG 9 Support			
20 years of ER Personnel	0.25	125,000	31,250
ANL-W ADDER	30 %		9,375
SUPPORT ANNUAL COST			40,625

MONITORING			
Sampling and Monitoring /yr	2	16	100
Maintenance Inspection /yr	2	16	100
Report Preparation /yr	1	60	100
ANL-W ADDER	30 %		2,760
MONITORING ANNUAL COST			11,960

5-Year Review Report			
Report Preparation by ANL-W	1	120	1,000
ANL-W ADDER	30 %		3,900
5-YEAR REPORT COST			16,900

100-YEAR LONG TERM COSTS			
WAG 9 Support (5 years)	5	40,625	203,125
Annual Cost (20 YRS)	20	11,960	239,200
5-Year Review Cost (20 TIMES)	20	16,900	338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS			780,325

DETAILED COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES
 Site ANL-01A, MAIN COOLING TOWER BLOWDOWN DITCH
 Alternative 4b, EXCAVATION AND DISPOSAL AT PRIVATE FACILITY

Date 9/4/97
 Prep'd By Scott Lee

DESCRIPTION	MATERIAL		UNIT LAB HRS	LABOR RATE	LABOR COST	MATERIAL COST	OTHER COST	TOTAL COST
	MATERIAL UNIT	UNIT COST						
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	3		20	75	4,500			4,500
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	15	100				1,500		1,500
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Excavation Permit	1		4	125	500			500
Waste Acceptance Report to LIMITCO	1		60	125	7,500			7,500
TOTAL TITLE DESIGN PACKAGE								18,250

CONSTRUCTION SUBCONTRACT	L=	W=	D=	CY=	MATERIAL COST	OTHER COST	TOTAL COST
Mob & Demobilization	1				10,000		10,000
Volume of Contaminated Soil						311.11	311.11
Soil Removal	311.11	75			23333.33		23333.33
Soil Transport to Rail Yard	311.11	75			23333.33		23333.33
Rail Transport Cost/ton	777.7778	10			7777.778		7777.778
Tipping Fee Private Co./cy	311.11	350			108888.9		108888.9
Backfill Site to Grade	311.11	75			23333.33		23333.33
Revegetation (square feet)	4200	1			4200		4200

ACCESS RESTRICTION FENCING			
6' Security Fence - 1 Gate	NA		0
Surface Water Diversion	NA		0
TOTAL CONSTRUCTION			200,867

SUM CAPITAL COSTS			
Design & Construction Total			219,117
ANL-W ADDER	30 %		65,735
TOTAL CAPITAL COSTS 97 DOLLARS			284,852

OPERATIONS AND MAINTENANCE

WAG 9 Support			
20 years of ER Personnel	0.25	125,000	31,250
ANL-W ADDER	30 %		9,375
SUPPORT ANNUAL COST			40,625

MONITORING			
Sampling and Monitoring /yr	2	8	16
Maintenance Inspection /yr	2	8	16
Report Preparation /yr	1	60	60
ANL-W ADDER	30 %		2,760
MONITORING ANNUAL COST			11,960

5-Year Review Report			
Report Preparation by ANL-W	1	120	120
ANL-W ADDER	30 %		3,900
5-YEAR REPORT COST			16,900

100-YEAR LONG TERM COSTS			
WAG 9 Support (5 years)	5	40,625	203,125
Annual Cost (20 YRS)	20	11,960	239,200
5-Year Review Cost (20 TIMES)	20	16,900	338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS			780,325

DETAILED COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES Date 9/4/97
 Site ANL-01A, MAIN COOLING TOWER BLOWDOWN DITCH Prep'd By Scott Lee
 Alternative 5, PHYTOREMEDIATION

DESCRIPTION	MAT'L		UNIT LAB HRS	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
	MAT'L UNIT	UNIT COST						
CAPITAL COSTS								
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	1		16	75	1,200			1,200
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	30	100				3,000		3,000
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Digging Permit	1		4	125	500			500
Waste Acceptance Report to LIMITCO	1		40	125	5,000			5,000
TOTAL TITLE DESIGN PACKAGE								13,950

DESCRIPTION	L=	W=	D=	CY=	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
PHYTO SUBCONTRACT								
Specialized Equipment one time cost	1					8,000		8,000
Volume of Contaminated Soil		6			2		311.11	8,000
Prepare Soil for Planting		10.5	60		630			630
Planting/growing season		10.5	60		630			630
Irrigating/growing season		21	60		1260			1260
Fertilize/growing season		5.25	60		315			315
Cutting/growing season		10.5	60		630			630
Bailing/growing season		10.5	60		630			630
Rad Survey/growing season		2.10	125		262.5			262.5
Transport to INEEL Incinerator/growing season		10.50	60		630			630
TOTAL FIRST YEAR PHYTO COSTS								12,988
ADDITIONAL FOUR YEAR PHYTO COSTS	4							19,950

ACCESS RESTRICTION FENCING				
6' Security Fence - 1 Gate	NA	25		0
Surface Water Diversion	NA	5		0
TOTAL FIVE YEAR PHYTO				45,925

SUM CAPITAL COSTS				
Design & Phyto Total				59,875
ANL-W ADDER	30 %			17,963
TOTAL CAPITAL COSTS 97 DOLLARS				77,838

OPERATIONS AND MAINTENANCE

WAG 9 Support				
20 years of ER Personnel	0.25	125,000	31,250	31,250
ANL-W ADDER	30 %			9,375
SUPPORT ANNUAL COST				40,625

MONITORING				
Sampling and Monitoring /yr	2	8	100	1,600
Maintenance Inspection /yr	2	8	100	1,600
Report Preparation /yr	1	60	100	6,000
ANL-W ADDER	30 %			2,760
MONITORING ANNUAL COST				11,960

5-Year Review Report				
Report Preparation by ANL-W	1	120	100	12,000
ANL-W ADDER	30 %			3,900
5-YEAR REPORT COST				16,900

100-YEAR LONG TERM COSTS				
WAG 9 Support (5 years)	5	40,625		203,125
Annual Cost (20 YRS)	20	11,960		239,200
5-Year Review Cost (20 TIMES)	20	16,900		338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS				780,325

SUMMARY COST ESTIMATE SHEET

9/4/97

Date
Prep'd By
Scott Lee

Project
OU 9-04 FS COST ESTIMATES
Site
ANL-04-Sewage Lagoons
Alternative
All Remedial Alternatives

Description	Alternative 1 No Action	Alternative 3a Engineered (SL-i-Type) Cover	Alternative 4a Excavation and Disposal at INEEL Soil Repository	Alternative 4b Excavation and Disposal at Private Facility	Alternative 5 PhytoRemediation
CAPITAL COSTS					
TOTAL CAPITAL COST IN FY98 DOLLARS	NA	\$1,536,749.50	\$1,031,745.00	\$2,373,345.00	\$801,638.50
TOTAL CAPITAL COST IN ESCALATED DOLLARS (5%/yr)	NA	\$1,613,586.98	\$1,083,332.25	\$2,492,012.25	\$841,720.43
TOTAL CAPITAL COST IN NET PRESENT VALUE	NA	\$1,536,749.50	\$1,031,745.00	\$2,373,345.00	\$801,638.50
OPERATIONS AND MAINTENANCE COSTS					
WAG 9 SUPPORT IN FY98 DOLLARS/YR	\$40,625.00	\$40,625.00	\$40,625.00	\$40,625.00	\$40,625.00
WAG 9 SUPPORT IN ESCALATED DOLLARS	\$1,343,304.39	\$1,343,304.39	\$224,478.77	\$224,478.77	\$224,478.77
WAG 9 SUPPORT IN NET PRESENT VALUE	\$506,277.30	\$506,277.30	\$175,884.99	\$175,884.99	\$175,884.99
MONITORING COSTS					
MONITORING COST IN FY98 DOLLARS/YR	\$11,960.00	\$11,960.00	\$11,960.00	\$11,960.00	\$11,960.00
MONITORING COST IN ESCALATED DOLLARS	\$31,215,900.88	\$31,215,900.88	\$395,468.81	\$395,468.81	\$395,468.81
MONITORING COST NET PRESENT VALUE	\$237,381.01	\$237,381.01	\$149,048.04	\$149,048.04	\$149,048.04
5-YEAR REVIEW COSTS					
5-YEAR REVIEW COST IN FY98 DOLLARS/YR	\$16,900.00	\$16,900.00	\$16,900.00	\$16,900.00	\$16,900.00
5-YEAR REVIEW COST IN ESCALATED DOLLARS	\$558,814.62	\$558,814.62	\$558,814.62	\$558,814.62	\$558,814.62
5-YEAR REVIEW COST NET PRESENT VALUE	\$210,611.35	\$210,611.35	\$210,611.35	\$210,611.35	\$210,611.35
TOTAL O&M COST IN NET PRESENT VALUE					
	\$954,269.66	\$954,269.66	\$535,544.38	\$535,544.38	\$535,544.38
TOTAL PROJECT COST IN NET PRESENT VALUE	\$954,270	\$2,491,019	\$1,567,289	\$2,908,889	\$1,337,183

DETAILED COST ESTIMATE SHEET

Project: OU 9-04 FS COST ESTIMATES Date: 9/4/97
 Site: ANL-04, SEWAGE LAGOONS Prep'd By: Scott Lee
 Alternative: 3A, CONTAINMENT WITH SL-1 ENGINEERED BARRIER

DESCRIPTION	MAT'L		UNIT LAB HRS	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
	UNIT	COST						
CAPITAL COSTS								
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	3		30	75	6,750			6,750
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	15	100				1,500		1,500
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Excavation Permit	1		4	125	500			500
RCRA Subtitle D Landfill Apl.	1		40	125	5,000			5,000
TOTAL TITLE DESIGN PACKAGE								18,000

CONSTRUCTION SUBCONTRACT								
Mob & Demobilization	1	10,000				10,000		10,000
Volume of Contaminated Soil	L=	200	W=	387	D=	1	CY=	2866.67
Construction of Base	2866.67	75				215000		215000
Density Testing of Base	2866.67	75		8	125	1000		1000
Soil Removal	2866.67	75				215000		215000
Backfill Site to Grade	2866.67	75				215000		215000
Revegetation (square feet)	77400	1				77400		77400
CAP								
RIP -RAP 24" cy	5,733	8	286.67	1,433.33	75	107,500	45,867	153,367
Gravel Layer 8 cy	1,921	15	96.03	480.17	75	36,013	28,810	64,823
Cobble 12" cy	2,867	17	143.33	716.67	75	53,750	48,733	102,483
Gravel Layer 8 cy	1,921	15	96.03	480.17	75	36,013	28,810	64,823

WAG 9 Construction oversight	1	80	125	10,000	10000
ACCESS RESTRICTION FENCING					
6' Security Fence - 1 Gate	1,174	25		29,350	29,350
Surface Water Diversion	1,174	5		5,870	5,870
TOTAL CONSTRUCTION					1,164,115

SUM CAPITAL COSTS					
Design & Construction Total					1,182,115
ANL-W ADDER	30 %				354,635
TOTAL CAPITAL COSTS 97 DOLLARS					1,536,750

OPERATIONS AND MAINTENANCE

WAG 9 Support					
20 years of ER Personnel	0.25	125,000		31,250	31,250
ANL-W ADDER	30 %				9,375
SUPPORT ANNUAL COST					40,625

MONITORING					
Sampling and Monitoring /yr	2	8	100	1,600	1,600
Maintenance Inspection /yr	2	8	100	1,600	1,600
Report Preparation /yr	1	60	100	6,000	6,000
ANL-W ADDER	30 %				2,760
MONITORING ANNUAL COST					11,960

5-Year Review Report					
Report Preparation by ANL-W	1	120	100	12,000	1,000
ANL-W ADDER	30 %				3,900
5-YEAR REPORT COST					16,900

100-YEAR LONG TERM COSTS					
WAG 9 Support (20 years)	20	40,625			812,500
Annual Cost (100 YRS)	100	11,960			1,196,000
5-Year Review Cost (20 TIMES)	20	16,900			338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS					2,346,500

DETAILED COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES
 Site ANL-04, SEWAGE LAGOONS
 Alternative 4a, EXCAVATION AND DISPOSAL AT INEEL SOIL REPOSITORY

Date 9/4/97
 Prep'd By Scott Lee

DESCRIPTION	MAT'L		UNIT LAB HRS	LABOR RATE	LABOR COST	MATERIAL COST	OTHER COST	TOTAL COST
	UNIT	COST						
CAPITAL COSTS								
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	3		20	75	4,500			4,500
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	15	100				1,500		1,500
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Excavation Permit	1		4	125	500			500
Waste Acceptance Report to LMITCO	1		60	125	7,500			7,500
TOTAL TITLE DESIGN PACKAGE								18,250

CONSTRUCTION SUBCONTRACT								
Mob & Demobilization	1	10,000				10,000		10,000
Volume of Contaminated Soil	L=	200	W=	387	D=	1	CY=	2866.67
Soil Removal		2866.67						215000
Soil Transport to INEEL Repository		2866.67						215000
Tipping Fee LMITCO/cy		2866.67						43000
Backfill Site to Grade		2866.67						215000
Revegetation (square feet)		77400						77400

ACCESS RESTRICTION FENCING		
6' Security Fence - 1 Gate	NA	0
Surface Water Diversion	NA	0
TOTAL CONSTRUCTION		775,400

SUM CAPITAL COSTS		
Design & Construction Total		793,650
ANL-W ADDER	30 %	238,095
TOTAL CAPITAL COSTS 97 DOLLARS		1,031,745

OPERATIONS AND MAINTENANCE

WAG 9 Support		
20 years of ER Personnel	0.25	31,250
ANL-W ADDER	30 %	9,375
SUPPORT ANNUAL COST		40,625

MONITORING		
Sampling and Monitoring /yr	2	1,600
Maintenance Inspection /yr	2	1,600
Report Preparation /yr	1	6,000
ANL-W ADDER	30 %	2,760
MONITORING ANNUAL COST		11,960

5-Year Review Report		
Report Preparation by ANL-W	1	13,000
ANL-W ADDER	30 %	3,900
5-YEAR REPORT COST		16,900

100-YEAR LONG TERM COSTS		
WAG 9 Support (5 years)	5	203,125
Annual Cost (20 YRS)	20	239,200
5-Year Review Cost (20 TIMES)	20	338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS		780,325

ACCESS RESTRICTION FENCING					
6' Security Fence - 1 Gate	NA			0	
Surface Water Diversion	NA			0	
TOTAL CONSTRUCTION					1,807,400

SUM CAPITAL COSTS					
Design & Construction Total					1,825,650
ANL-W ADDER	30 %				547,695
TOTAL CAPITAL COSTS 97 DOLLARS					2,373,345

OPERATIONS AND MAINTENANCE

WAG 9 Support					
20 years of ER Personnel	0.25	125,000	31,250		31,250
ANL-W ADDER	30 %				9,375
SUPPORT ANNUAL COST					40,625

MONITORING					
Sampling and Monitoring /yr	2	8	16	100	1,600
Maintenance Inspection /yr	2	8	16	100	1,600
Report Preparation /yr	1	60	60	100	6,000
ANL-W ADDER	30 %				2,760
MONITORING ANNUAL COST					11,960

5-Year Review Report					
Report Preparation by ANL-W	1	120	120	100	13,000
ANL-W ADDER	30 %				3,900
5-YEAR REPORT COST					16,900

100-YEAR LONG TERM COSTS					
WAG 9 Support (5 years)	5	40,625			203,125
Annual Cost (20 YRS)	20	11,960			239,200
5-Year Review Cost (20 TIMES)	20	16,900			338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS					780,325

DETAILED COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES
 Site ANL-04, SEWAGE LAGOONS
 Alternative 5, PHYTOREMEDIATION

Date 9/4/97
 Prep'd By Scott Lee

DESCRIPTION	MAT'L		UNIT LAB		LABOR		LABOR		MAT'L		OTHER		TOTAL	
	UNIT	COST	HRS	LAB HRS	RATE	COST	RATE	COST	COST	COST	COST	COST	COST	COST
CAPITAL COSTS														
DESIGN PROCUREMENT PACKAGE														
Siting and Surveying	1		16		75	1,200								1,200
Final Design Bid Package	1		8		125	1,000								1,000
Safety Analysis Report	1		10		125	1,250								1,250
Verification sampling plan	1		8		125	1,000								1,000
Verification Sample Costs	30	100							3,000					3,000
Safe Work Permit	1		4		125	500								500
Radiation Work Permit	1		4		125	500								500
Digging Permit	1		4		125	500								500
Waste Acceptance Report to LIMITCO	1		40		125	5,000								5,000
TOTAL TITLE DESIGN PACKAGE														13,950

PHYTO SUBCONTRACT														
Specialized Equipment one time cost	1	8,000												8,000
Volume of Contaminated Soil	L=	200	W=	387	D=	1			8,000		2866.67			
Prepare Soil for Planting				193.5	60	11610								11610
Planting/growing season				193.5	60	11610								11610
Irrigating/growing season				387	60	23220								23220
Fertilize/growing season				96.75	60	5805								5805
Cutting/growing season				193.5	60	11610								11610
Baling/growing season				193.5	60	11610								11610
Rad Survey/growing season				38.70	125	4837.5								4837.5
Transport to INEEL Incinerator/growing season				193.50	60	11610								11610
TOTAL FIRST YEAR PHYTO COSTS														99,913
ADDITIONAL FOUR YEAR PHYTO COSTS														367,650

ACCESS RESTRICTION FENCING					
6' Security Fence - 1 Gate	1,174	25		29,350	29,350
Surface Water Diversion	1,174	5		5,870	5,870
TOTAL FIVE YEAR PHYTO					602,695

SUM CAPITAL COSTS					
Design & Phyto Total					616,645
ANL-W ADDER	30 %				184,994
TOTAL CAPITAL COSTS 97 DOLLARS					801,639

OPERATIONS AND MAINTENANCE

WAG 9 Support					
20 years of ER Personnel	0.25	125,000		31,250	31,250
ANL-W ADDER	30 %				9,375
SUPPORT ANNUAL COST					40,625

MONITORING					
Sampling and Monitoring /yr	2	16	100	1,600	1,600
Maintenance Inspection /yr	2	16	100	1,600	1,600
Report Preparation /yr	1	60	100	6,000	6,000
ANL-W ADDER	30 %				2,760
MONITORING ANNUAL COST					11,960

5-Year Review Report					
Report Preparation by ANL-W	1	120	100	12,000	13,000
ANL-W ADDER	30 %				3,900
5-YEAR REPORT COST					16,900

100-YEAR LONG TERM COSTS					
WAG 9 Support (5 years)	5	40,625			203,125
Annual Cost (20 YRS)	20	11,960			239,200
5-Year Review Cost (20 TIMES)	20	16,900			338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS					780,325

SUMMARY COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES
 Site ANL-09-Mound Interceptor Canal Ditch
 Alternative All Remedial Alternatives

Date 9/4/97
 Prep'd By Scott Lee

Description	Alternative 1 No Action	Alternative 3a Engineered (SL-1-Type) Cover	Alternative 4a Excavation and Disposal at INEEL Soil Repository	Alternative 4b Excavation and Disposal at Private Facility	Alternative 5 PhytoRemediation
CAPITAL COSTS					
TOTAL CAPITAL COST IN FY98 DOLLARS	NA	\$3,275,309.38	\$3,056,300.00	\$7,502,300.00	\$548,396.88
TOTAL CAPITAL COST IN ESCALATED DOLLARS (5%/yr)	NA	\$3,439,074.84	\$3,209,115.00	\$7,877,415.00	\$575,816.72
TOTAL CAPITAL COST IN NET PRESENT VALUE	NA	\$3,275,309.38	\$3,056,300.00	\$7,502,300.00	\$548,396.88
OPERATIONS AND MAINTENANCE COSTS					
WAG 9 SUPPORT IN FY98 DOLLARS/YR	\$40,625.00	\$40,625.00	\$40,625.00	\$40,625.00	\$40,625.00
WAG 9 SUPPORT IN ESCALATED DOLLARS	\$1,243,304.30	\$1,243,304.30	\$724,478.77	\$724,478.77	\$724,478.77
WAG 9 SUPPORT IN NET PRESENT VALUE	\$506,277.30	\$506,277.30	\$175,884.99	\$175,884.99	\$175,884.99
MONITORING COST IN FY98 DOLLARS/YR	\$11,960.00	\$11,960.00	\$11,960.00	\$11,960.00	\$11,960.00
MONITORING COST IN ESCALATED DOLLARS	\$31,215,900.88	\$31,215,900.88	\$395,468.81	\$395,468.81	\$395,468.81
MONITORING COST NET PRESENT VALUE	\$237,381.01	\$237,381.01	\$149,048.04	\$149,048.04	\$149,048.04
5-YEAR REVIEW COST IN FY98 DOLLARS/YR	\$16,900.00	\$16,900.00	\$16,900.00	\$16,900.00	\$16,900.00
5-YEAR REVIEW COST IN ESCALATED DOLLARS	\$558,814.62	\$558,814.62	\$558,814.62	\$558,814.62	\$558,814.62
5-YEAR REVIEW COST NET PRESENT VALUE	\$210,611.35	\$210,611.35	\$210,611.35	\$210,611.35	\$210,611.35
TOTAL O&M COST IN NET PRESENT VALUE	\$954,269.66	\$954,269.66	\$535,544.38	\$535,544.38	\$535,544.38
TOTAL PROJECT COST IN NET PRESENT VALUE	\$954,270	\$4,229,579	\$3,591,844	\$8,037,844	\$1,083,941

DETAILED COST ESTIMATE SHEET

Subject: OU 9-04 FS COST ESTIMATES Date: 9/4/97
 Site: ANL-09, INTERCEPTOR CANAL DITCH Prep'd By: Scott Lee
 Alternative: 3A, CONTAINMENT WITH SL-1 ENGINEERED BARRIER

DESCRIPTION	MATERIAL		UNIT LAB		TOTAL LABOR		LABOR		MATERIAL		OTHER		TOTAL	
	UNIT	COST	HRS	LAB HRS	RATE	COST	COST	COST	COST	COST	COST	COST	COST	COST
DESIGN PROCUREMENT PACKAGE														
Siting and Surveying	3		30	90	75	6,750								6,750
Final Design Bid Package	1			8	125	1,000								1,000
Safety Analysis Report	1			10	125	1,250								1,250
Verification sampling plan	1			8	125	1,000								1,000
Verification Sample Costs	15	100							1,500					1,500
Safe Work Permit	1			4	125	500								500
Radiation Work Permit	1			4	125	500								500
Excavation Permit	1			4	125	500								500
RCRA Subtitle D Landfill Apl.	1			40	125	5,000								5,000
TOTAL TITLE DESIGN PACKAGE														18,000

CONSTRUCTION SUBCONTRACT														
Mob & Demobilization	1	10,000							10,000					10,000
Volume of Contaminated Soil	L=	1425	W=	30	D=	6				CY=	9500.00			
Construction of Base		9500.00		8	125	1000			712500					712500
Density Testing of Base		9500.00		75					712500					712500
Soil Removal		9500.00		75					712500					712500
Backfill Site to Grade		42750		1					42750					42750
Revegetation (square feet)		3,167	8	158.33	75	59,375			25,333					84,708
CAP		1,061	15	53.04	75	19,891			15,913					35,803
RIP -RAP 24" cy		1,583	17	79.17	75	29,688			26,917					56,604
Gravel Layer 8 cy		1,061	15	53.04	75	19,891			15,913					35,803
Cobble 12" cy														
Gravel Layer 8 cy														

WAG 9 Construction oversight	1	80	125	10,000	10000
ACCESS RESTRICTION FENCING					
6' Security Fence - 1 Gate	2,910	25		72,750	72,750
Surface Water Diversion	2,910	5		14,550	14,550
TOTAL CONSTRUCTION					2,501,469

SUM CAPITAL COSTS					
Design & Construction Total					2,519,469
ANL-W ADDER	30 %				755,841
TOTAL CAPITAL COSTS 97 DOLLARS					3,275,309

OPERATIONS AND MAINTENANCE

WAG 9 Support					
20 years of ER Personnel	0.25	125,000	31,250		31,250
ANL-W ADDER	30 %				9,375
SUPPORT ANNUAL COST					40,625

MONITORING					
Sampling and Monitoring /yr	2	8	100	1,600	1,600
Maintenance Inspection /yr	2	8	100	1,600	1,600
Report Preparation /yr	1	60	100	6,000	6,000
ANL-W ADDER	30 %				2,760
MONITORING ANNUAL COST					11,960

5-Year Review Report					
Report Preparation by ANL-W	1	120	100	12,000	13,000
ANL-W ADDER	30 %				3,900
5-YEAR REPORT COST					16,900

100-YEAR LONG TERM COSTS					
WAG 9 Support (20 years)	20	40,625			812,500
Annual Cost (100 YRS)	100	11,960			1,196,000
5-Year Review Cost (20 TIMES)	20	16,900			338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS					2,346,500

DETAILED COST ESTIMATE SHEET

Project: OU 9-04 FS COST ESTIMATES
 Site: ANL-09, INTERCEPTOR CANAL DITCH
 Alternative: 4a, EXCAVATION AND DISPOSAL AT INEEL SOIL REPOSITORY

Date: 9/4/97
 Prep'd By: Scott Lee

DESCRIPTION	MATERIAL		UNIT LAB HRS	TOTAL LAB HRS	LABOR RATE	LABOR COST	MATERIAL COST	OTHER COST	TOTAL COST
	MATERIAL UNIT	UNIT COST							
CAPITAL COSTS									
DESIGN PROCUREMENT PACKAGE									
Siting and Surveying	3		20	60	75	4,500			4,500
Final Design Bid Package	1			8	125	1,000			1,000
Safety Analysis Report	1			10	125	1,250			1,250
Verification sampling plan	1			8	125	1,000			1,000
Verification Sample Costs	15	100					1,500		1,500
Safe Work Permit	1			4	125	500			500
Radiation Work Permit	1			4	125	500			500
Excavation Permit	1			4	125	500			500
Waste Acceptance Report to LIMITCO	1			60	125	7,500			7,500
TOTAL TITLE DESIGN PACKAGE									18,250

CONSTRUCTION SUBCONTRACT									
Mob & Demobilization	1	10,000					10,000		10,000
Volume of Contaminated Soil	L=	1425	W=	30	D=	6	CY=	9500.00	
Soil Removal		9500.00					712500		712500
Soil Transport to INEEL Repository		9500.00					712500		712500
Tipping Fee LIMITCO/cy		9500.00					142500		142500
Backfill Site to Grade		9500.00					712500		712500
Revegetation (square feet)		42750					42750		42750

ACCESS RESTRICTION FENCING				
6' Security Fence - 1 Gate	NA			0
Surface Water Diversion	NA			0
TOTAL CONSTRUCTION				2,332,750

SUM CAPITAL COSTS				
Design & Construction Total				2,351,000
ANL-W ADDER	30 %			705,300
TOTAL CAPITAL COSTS 97 DOLLARS				3,056,300

OPERATIONS AND MAINTENANCE

WAG 9 Support				
20 years of ER Personnel	0.25	125,000	31,250	31,250
ANL-W ADDER	30 %			9,375
SUPPORT ANNUAL COST				40,625

MONITORING				
Sampling and Monitoring /yr	2	8	16	100
Maintenance Inspection /yr	2	3	13	133
Report Preparation /yr	1	60	60	100
ANL-W ADDER	30 %			2,760
MONITORING ANNUAL COST				11,960

5-Year Review Report				
Report Preparation by ANL-W	1	120	120	1,000
ANL-W ADDER	30 %			3,900
5-YEAR REPORT COST				16,900

100-YEAR LONG TERM COSTS				
WAG 9 Support (5 years)	5	40,625	203,125	203,125
Annual Cost (20 YRS)	20	11,960	239,200	239,200
5-Year Review Cost (20 TIMES)	20	16,900	338,000	338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS				780,325

DETAILED COST ESTIMATE SHEET

Project OJ 9-04 FS COST ESTIMATES
 Site ANL-09, INTERCEPTOR CANAL DITCH
 Alternative 4b, EXCAVATION AND DISPOSAL AT PRIVATE FACILITY

Date 9/4/97
 Prep'd By Scott Lee

DESCRIPTION	MATERIAL		UNIT LAB HRS	LABOR RATE	LABOR COST	MATERIAL COST	OTHER COST	TOTAL COST
	MATERIAL UNIT	MATERIAL COST						
CAPITAL COSTS								
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	3		20	75	4,500			4,500
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	15	100				1,500		1,500
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Excavation Permit	1		4	125	500			500
Waste Acceptance Report to LIMITCO	1		60	125	7,500			7,500
TOTAL TITLE DESIGN PACKAGE								18,250

CONSTRUCTION SUBCONTRACT								
Mob & Demobilization	1	10,000				10,000		10,000
Volume of Contaminated Soil	L=	1425	W=	30	D=	6	CY=	9500.00
Soil Removal	9500.00		75				712500	712500
Soil Transport to Rail Yard	9500.00		75				712500	712500
Rail Transport Cost/ton	23750		10				237500	237500
Tipping Fee Private Co./cy	9500.00		350				3325000	3325000
Backfill Site to Grade	9500.00		75				712500	712500
Revegetation (square feet)	42750		1				42750	42750

ACCESS RESTRICTION FENCING				
6' Security Fence - 1 Gate	NA			0
Surface Water Diversion	NA			0
TOTAL CONSTRUCTION				5,752,750

SUM CAPITAL COSTS				
Design & Construction Total				5,771,000
ANL-W ADDER	30 %			1,731,300
TOTAL CAPITAL COSTS 97 DOLLARS				7,502,300

OPERATIONS AND MAINTENANCE

WAG 9 Support				
20 years of ER Personnel	0.25	125,000	31,250	31,250
ANL-W ADDER	30 %			9,375
SUPPORT ANNUAL COST				40,625

MONITORING					
Sampling and Monitoring /yr	2	8	16	100	1,600
Maintenance Inspection /yr	2	3	16	100	1,600
Report Preparation /yr	1	60	60	100	6,000
ANL-W ADDER	30 %				2,760
MONITORING ANNUAL COST					11,960

5-Year Review Report					
Report Preparation by ANL-W	1	120	120	100	12,000
ANL-W ADDER	30 %				3,900
5-YEAR REPORT COST					16,900

100-YEAR LONG TERM COSTS					
WAG 9 Support (5 years)	5	40,625			203,125
Annual Cost (20 YRS)	20	11,960			239,200
5-Year Review Cost (20 TIMES)	20	16,900			338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS					780,325

DETAILED COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES
 Site ANL-09, INTERCEPTOR CANAL DITCH
 Alternative 5, PHYTOREMEDIATION

Date 9/4/97
 Prep'd By Scott Lee

DESCRIPTION	MATERIAL		TOTAL LAB HRS	LABOR RATE	LABOR COST	MATERIAL COST	OTHER COST	TOTAL COST
	UNIT	COST						
CAPITAL COSTS								
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	1		16	75	1,200			1,200
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	30	100				3,000		3,000
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Digging Permit	1		4	125	500			500
Waste Acceptance Report to LIMITCO	1		40	125	5,000			5,000
TOTAL TITLE DESIGN PACKAGE								13,950
PHYTO SUBCONTRACT								
Specialized Equipment one time cost	1	8,000				8,000		8,000
Volume of Contaminated Soil	L=	1425	W=	30	D=	6	CY=	9500.00
Prepare Soil for Planting			106.875	60	6412.5			6412.5
Planting/growing season			106.875	60	6412.5			6412.5
Irrigating/growing season			213.75	60	12825			12825
Fertilize/growing season			53.4375	60	3206.25			3206.25
Cutting/growing season			106.875	60	6412.5			6412.5
Bailing/growing season			106.875	60	6412.5			6412.5
Rad Survey/growing season			21.38	125	2671.875			2671.875
Transport to INEEL Incinerator/growing season			106.88	60	6412.5			6412.5
TOTAL FIRST YEAR PHYTO COSTS								58,766
ADDITIONAL FOUR YEAR PHYTO COSTS								203,063

ACCESS RESTRICTION FENCING				
6' Security Fence - 1 Gate	2,910	25	72,750	72,750
Surface Water Diversion	2,910	5	14,550	14,550
TOTAL FIVE YEAR PHYTO				407,894

SUM CAPITAL COSTS				
Design & Phyto Total				421,844
ANL-W ADDER	30 %			126,553
TOTAL CAPITAL COSTS 97 DOLLARS				548,397

OPERATIONS AND MAINTENANCE				
WAG 9 Support				
20 years of ER Personnel	0.25	125,000	31,250	31,250
ANL-W ADDER	30 %			9,375
SUPPORT ANNUAL COST				40,625

MONITORING				
Sampling and Monitoring /yr	2	8	100	1,600
Maintenance Inspection /yr	2	8	100	1,600
Report Preparation /yr	1	60	100	6,000
ANL-W ADDER	30 %			2,760
MONITORING ANNUAL COST				11,960

5-Year Review Report				
Report Preparation by ANL-W	1	120	100	13,000
ANL-W ADDER	30 %			3,900
5-YEAR REPORT COST				16,900

100-YEAR LONG TERM COSTS				
WAG 9 Support (5 years)	5	40,625	203,125	203,125
Annual Cost (20 YRS)	20	11,960	239,200	239,200
5-Year Review Cost (20 TIMES)	20	16,900	338,000	338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS				780,325

SUMMARY COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES
 Site ANL-09-Mound Interceptor Canal Mound
 Alternative All Remedial Alternatives

Date 9/4/97
 Prep'd By Scott Lee

Description	Alternative 1 No Action	Alternative 3a Engineered (SL-1-Type) Cover	Alternative 4a Excavation and Disposal at INEEL Soil Repository	Alternative 4b Excavation and Disposal at Private Facility	Alternative 6 PhytoRemediation
CAPITAL COSTS					
TOTAL CAPITAL COST IN FY98 DOLLARS	NA	\$602,340.56	\$511,947.22	\$1,205,280.56	\$172,120.00
TOTAL CAPITAL COST IN ESCALATED DOLLARS (5%/yr)	NA	\$632,457.58	\$537,544.58	\$1,265,544.58	\$180,726.00
TOTAL CAPITAL COST IN NET PRESENT VALUE	NA	\$602,340.56	\$511,947.22	\$1,205,280.56	\$172,120.00
OPERATIONS AND MAINTENANCE COSTS					
WAG 9 SUPPORT IN FY98 DOLLARS/YR	\$40,625.00	\$40,625.00	\$40,625.00	\$40,625.00	\$40,625.00
WAG 9 SUPPORT IN ESCALATED DOLLARS	\$1,343,304.39	\$1,343,304.39	\$1,343,304.39	\$1,343,304.39	\$1,343,304.39
WAG 9 SUPPORT IN NET PRESENT VALUE	\$506,277.30	\$506,277.30	\$175,884.99	\$175,884.99	\$175,884.99
MONITORING COST IN FY98 DOLLARS/YR	\$11,960.00	\$11,960.00	\$11,960.00	\$11,960.00	\$11,960.00
MONITORING COST IN ESCALATED DOLLARS	\$31,215,900.88	\$31,215,900.88	\$395,468.81	\$395,468.81	\$395,468.81
MONITORING COST NET PRESENT VALUE	\$237,381.01	\$237,381.01	\$149,048.04	\$149,048.04	\$149,048.04
5-YEAR REVIEW COST IN FY98 DOLLARS/YR	\$16,900.00	\$16,900.00	\$16,900.00	\$16,900.00	\$16,900.00
5-YEAR REVIEW COST IN ESCALATED DOLLARS	\$558,814.62	\$558,814.62	\$558,814.62	\$558,814.62	\$558,814.62
5-YEAR REVIEW COST NET PRESENT VALUE	\$210,611.35	\$210,611.35	\$210,611.35	\$210,611.35	\$210,611.35
TOTAL O&M COST IN NET PRESENT VALUE	\$954,269.66	\$954,269.66	\$535,544.38	\$535,544.38	\$535,544.38
TOTAL PROJECT COST IN NET PRESENT VALUE	\$954,270	\$1,556,610	\$1,047,492	\$1,740,825	\$707,664

DETAILED COST ESTIMATE SHEET

Project: OU 9-04 FS COST ESTIMATES Date: 9/4/97
 Site: ANL-09, INTERCEPTOR CANAL MOUND Prep'd By: Scott Lee
 Alternative: 3A, CONTAINMENT WITH SL-1 ENGINEERED BARRIER

DESCRIPTION	MAT'L		UNIT LAB HRS	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
	UNIT	COST						
CAPITAL COSTS								
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	3		30	75	6,750			6,750
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	15	100		211		1,500		1,500
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Excavation Permit	1		4	125	500			500
RCRA Subtitle D Landfill Apl.	1		40	125	5,000			5,000
TOTAL TITLE DESIGN PACKAGE								18,000

CONSTRUCTION SUBCONTRACT								
Mob & Demobilization	1	10,000				10,000		10,000
Volume of Contaminated Soil	L=	500	W=	20	D=	4	CY=	1481.48
Construction of Base	1481.48	75		8	125	1000		111111.1
Density Testing of Base	1481.48	75						1000
Soil Removal	1481.48	75						111111.1
Backfill Site to Grade	1481.48	75						111111.1
Revegetation (square feet)	10000	1				10000		10000
CAP								
RIP -RAP 24" cy	741	8	37.04	185.19	75	13,889	5,926	19,815
Gravel Layer 8 cy	248	15	12.41	62.04	75	4,653	3,722	8,375
Cobble 12" cy	370	17	18.52	92.59	75	6,944	6,296	13,241
Gravel Layer 8 cy	248	15	12.41	62.04	75	4,653	3,722	8,375

WAG 9 Construction oversight	1	80	125	10,000	10000
ACCESS RESTRICTION FENCING					
6' Security Fence - 1 Gate	1,040	25	26,000	26,000	
Surface Water Diversion	1,040	5	5,200	5,200	
TOTAL CONSTRUCTION					445,339

SUM CAPITAL COSTS					463,339
Design & Construction Total					139,002
ANL-W ADDER	30 %				602,341
TOTAL CAPITAL COSTS 98 DOLLARS					

OPERATIONS AND MAINTENANCE

WAG 9 Support					
20 years of ER Personnel	0.25	125,000	31,250	31,250	31,250
ANL-W ADDER	30 %				9,375
SUPPORT ANNUAL COST					40,625

MONITORING					
Sampling and Monitoring /yr	2	8	100	1,600	1,600
Maintenance Inspection /yr	2	5	100	1,500	1,600
Report Preparation /yr	1	60	100	6,000	6,000
ANL-W ADDER	30 %				2,760
MONITORING ANNUAL COST					11,960

5-Year Review Report					
Report Preparation by ANL-W	1	120	100	12,000	13,000
ANL-W ADDER	30 %				3,900
5-YEAR REPORT COST					16,900

100-YEAR LONG TERM COSTS					
WAG 9 Support (20 years)	20	40,625		812,500	812,500
Annual Cost (100 YRS)	100	11,960		1,196,000	1,196,000
5-Year Review Cost (20 TIMES)	20	16,900		338,000	338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS					2,346,500

DETAILED COST ESTIMATE SHEET

Project: OU 9-04 FS COST ESTIMATES
 Site: ANL-09, INTERCEPTOR CANAL MOUND
 Alternative: 4a, EXCAVATION AND DISPOSAL AT INEEL SOIL REPOSITORY

Date: 9/4/97
 Prep'd By: Scott Lee

DESCRIPTION	MATERIAL		UNIT LAB HRS	LABOR RATE	LABOR COST	MATERIAL COST	OTHER COST	TOTAL COST
	MAT'L UNIT	UNIT COST						
CAPITAL COSTS								
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	3		20	75	4,500			4,500
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	15	100				1,500		1,500
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Excavation Permit	1		4	125	500			500
Waste Acceptance Report to LIMITCO	1		60	125	7,500			7,500
TOTAL TITLE DESIGN PACKAGE								18,250

CONSTRUCTION SUBCONTRACT								
MOB & DEMOBILIZATION	1	10,000				10,000		10,000
VOLUME OF CONTAMINATED SOIL	L=	500	W=	20	D=	4	CY=	1481.48
SOIL REMOVAL	1481.48	75				111111.1		111111.1
SOIL TRANSPORT TO INEEL REPOSITORY	1481.48	75				111111.1		111111.1
TIPPING FEE LIMITCO/CY	1481.48	15				22222.22		22222.22
BACKFILL SITE TO GRADE	1481.48	75				111111.1		111111.1
REVEGETATION (square feet)	10000	1				10000		10000

ACCESS RESTRICTION FENCING					
6' Security Fence - 1 Gate	NA				0
Surface Water Diversion	NA				0
TOTAL CONSTRUCTION					375,556

SUM CAPITAL COSTS					
Design & Construction Total					393,806
ANL-W ADDER	30 %				118,142
TOTAL CAPITAL COSTS 98 DOLLARS					511,947

OPERATIONS AND MAINTENANCE

WAG 9 Support					
20 years of ER Personnel	0.25	125,000			31,250
ANL-W ADDER	30 %				9,375
SUPPORT ANNUAL COST					40,625

MONITORING					
Sampling and Monitoring /yr	2	8	16	100	1,600
Maintenance Inspection /yr	2	8	16	100	1,600
Report Preparation /yr	1	60	60	100	6,000
ANL-W ADDER	30 %				2,760
MONITORING ANNUAL COST					11,960

5-Year Review Report					
Report Preparation by ANL-W	1	120	120	100	13,000
ANL-W ADDER	30 %				3,900
5-YEAR REPORT COST					16,900

100-YEAR LONG TERM COSTS					
WAG 9 Support (5 years)	5	40,625			203,125
Annual Cost (20 YRS)	20	11,960			239,200
5-Year Review Cost (20 TIMES)	20	16,900			338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS					780,325

DETAILED COST ESTIMATE SHEET

Project: OU 9-04 FS COST ESTIMATES Date: 9/4/97
 Site: ANL-09, INTERCEPTOR CANAL MOUND Prep'd By: Scott Lee
 Alternative: 4b, EXCAVATION AND DISPOSAL AT PRIVATE FACILITY

DESCRIPTION	MATERIAL		UNIT LAB HRS	LABOR RATE	LABOR COST	MATERIAL COST	OTHER COST	TOTAL COST
	MAT'L UNIT	UNIT COST						
CAPITAL COSTS								
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	3		20	75	4,500			4,500
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	15	100				1,500		1,500
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Excavation Permit	1		4	125	500			500
Waste Acceptance Report to LMITCO	1		60	125	7,500			7,500
TOTAL TITLE DESIGN PACKAGE								18,250

CONSTRUCTION SUBCONTRACT	L=	W=	D=	CY=	TOTAL COST
Mob & Demobilization	1	10,000			10,000
Volume of Contaminated Soil	1481.48	500	4	1481.48	11111.1
Soil Removal	1481.48	75			11111.1
Soil Transport to Rail Yard	3703.704	10			37037.04
Tipping Fee Private Co./cy	1481.48	350			518518.5
Backfill Site to Grade	1481.48	75			11111.1
Revegetation (square feet)	10000	1			10000

ACCESS RESTRICTION FENCING				
6' Security Fence - 1 Gate	NA			0
Surface Water Diversion	NA			0
TOTAL CONSTRUCTION				908,889

SUM CAPITAL COSTS				
Design & Construction Total				927,139
ANL-W ADDER		30 %		278,142
TOTAL CAPITAL COSTS 98 DOLLARS				1,205,281

OPERATIONS AND MAINTENANCE

WAG 9 Support					
20 years of ER Personnel	0.25	125,000	31,250	31,250	31,250
ANL-W ADDER	30 %			9,375	9,375
SUPPORT ANNUAL COST				40,625	

MONITORING					
Sampling and Monitoring /yr	2	8	16	100	1,600
Maintenance Inspection /yr	2	8	15	100	1,500
Report Preparation /yr	1	60	60	100	6,000
ANL-W ADDER	30 %				2,760
MONITORING ANNUAL COST				11,960	

5-Year Review Report					
Report Preparation by ANL-W	1	120	120	100	12,000
ANL-W ADDER	30 %				1,000
5-YEAR REPORT COST				16,900	

100-YEAR LONG TERM COSTS					
WAG 9 Support (5 years)	5	40,625			203,125
Annual Cost (20 YRS)	20	11,960			239,200
5-Year Review Cost (20 TIMES)	20	16,900			338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS				760,325	

ACCESS RESTRICTION FENCING					
6' Security Fence - 1 Gate	1,040	25		26,000	26,000
Surface Water Diversion	1,040	5		5,200	5,200
TOTAL FIVE YEAR PHYTO					118,450

SUM CAPITAL COSTS					
Design & Phyto Total					132,400
ANL-W ADDER	30 %				39,720
TOTAL CAPITAL COSTS 98 DOLLARS					172,120

OPERATIONS AND MAINTENANCE

WAG 9 Support					
20 years of ER Personnel	0.25		125,000	31,250	31,250
ANL-W ADDER	30 %				9,375
SUPPORT ANNUAL COST					40,625

MONITORING					
Sampling and Monitoring /yr	2	16	8	100	1,600
Maintenance Inspection /yr	2	16	8	100	1,600
Report Preparation /yr	1	60	60	100	6,000
ANL-W ADDER	30 %				2,760
MONITORING ANNUAL COST					11,960

5-Year Review Report					
Report Preparation by ANL-W	1	120	120	100	12,000
ANL-W ADDER	30 %				3,900
5-YEAR REPORT COST					16,900

100-YEAR LONG TERM COSTS					
WAG 9 Support (5 years)	5	40,625			203,125
Annual Cost (20 YRS)	20	11,960			239,200
5-Year Review Cost (20 TIMES)	20	16,900			338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS					780,325

SUMMARY COST ESTIMATE SHEET

Project: OU 9-04 FS COST ESTIMATES
 Site: ANL-35-Industrial Waste Discharge Ditch
 Alternative: All Remedial Alternatives

Date: 9/4/97
 Prep'd By: Scott Lee

Description	Alternative 1 No Action	Alternative 3a Engineered (SL-1-Type) Cover	Alternative 4a Excavation and Disposal at INEEL Soil Repository	Alternative 4b Excavation and Disposal at Private Facility	Alternative 5 PhytoRemediation
CAPITAL COSTS					
TOTAL CAPITAL COST IN FY98 DOLLARS	NA	\$87,916.11	\$62,436.11	\$97,102.78	\$57,460.00
TOTAL CAPITAL COST IN ESCALATED DOLLARS (5%/yr)	NA	\$92,311.92	\$65,557.92	\$101,957.92	\$60,333.00
TOTAL CAPITAL COST IN NET PRESENT VALUE	NA	\$87,916.11	\$62,436.11	\$97,102.78	\$57,460.00
OPERATIONS AND MAINTENANCE COSTS					
WAG 9 SUPPORT IN FY98 DOLLARS/yr	\$40,625.00	\$40,625.00	\$40,625.00	\$40,625.00	\$40,625.00
WAG 9 SUPPORT IN ESCALATED DOLLARS	\$1,243,304.30	\$1,243,304.30	\$774,478.77	\$224,478.77	\$224,478.77
WAG 9 SUPPORT IN NET PRESENT VALUE	\$506,277.30	\$506,277.30	\$175,984.99	\$175,984.99	\$175,884.99
MONITORING COST IN FY98 DOLLARS/yr	\$11,960.00	\$11,960.00	\$11,960.00	\$11,960.00	\$11,960.00
MONITORING COST IN ESCALATED DOLLARS	\$31,215,900.88	\$31,215,900.88	\$395,468.81	\$395,468.81	\$395,468.81
MONITORING COST NET PRESENT VALUE	\$237,381.01	\$237,381.01	\$149,048.04	\$149,048.04	\$149,048.04
5-YEAR REVIEW COST IN FY98 DOLLARS/yr	\$16,900.00	\$16,900.00	\$16,900.00	\$16,900.00	\$16,900.00
5-YEAR REVIEW COST IN ESCALATED DOLLARS	\$558,814.62	\$558,814.62	\$558,814.62	\$558,814.62	\$558,814.62
5-YEAR REVIEW COST NET PRESENT VALUE	\$210,611.35	\$210,611.35	\$210,611.35	\$210,611.35	\$210,611.35
TOTAL O&M COST IN NET PRESENT VALUE	\$954,269.66	\$954,269.66	\$535,544.38	\$535,544.38	\$535,544.38
TOTAL PROJECT COST IN NET PRESENT VALUE	\$954,270	\$1,042,186	\$597,980	\$632,647	\$593,004

DETAILED COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES Date 9/4/97
 Site ANL-35, North Ditch Prep'd By Scott Lee
 Alternative 3A, CONTAINMENT WITH SL-1 ENGINEERED BARRIER

DESCRIPTION	MAT'L		UNIT LAB HRS	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
	UNIT	COST						
CAPITAL COSTS								
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	3		30	75	6,750			6,750
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	15	100				1,500		1,500
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Excavation Permit	1		4	125	500			500
RCRA Subtitle D Landfill Apl.	1		40	125	5,000			5,000
TOTAL TITLE DESIGN PACKAGE								18,000
CONSTRUCTION SUBCONTRACT								
Mob & Demobilization	1	10,000				10,000		10,000
Volume of Contaminated Soil	L=	500	W=	D=	1	CY=	74.07	
Construction of Base	74.07	75				5555.556		5555.556
Density Testing of Base	74.07	75		125	1000			1000
Soil Removal	74.07	75				5555.556		5555.556
Backfill Site to Grade	74.07	75				5555.556		5555.556
Revegetation (square feet)	2000	1				2000		2000
CAP								
RIP -RAP 24" cy	148	8	7.41	75	2,778	1,185		3,963
Gravel Layer 8 cy	50	15	2.48	75	931	744		1,675
Cobble 12" cy	74	17	3.70	75	1,389	1,259		2,648

Gravel Layer 8 cy	50	15	2.48	12.41	75	931	744	1,675
WAG 9 Construction oversight	1			80	125	10,000		10,000
ACCESS RESTRICTION FENCING								
6' Security Fence - 1 Gate	NA	25					0	0
Surface Water Diversion	NA	5					0	0
TOTAL CONSTRUCTION								49,628

SUM CAPITAL COSTS								
Design & Construction Total								67,628
ANL-W ADDER	30 %							20,288
TOTAL CAPITAL COSTS 97 DOLLARS								87,916

OPERATIONS AND MAINTENANCE

WAG 9 Support								
20 years of ER Personnel	0.25		125,000			31,250		31,250
ANL-W ADDER	30 %							9,375
SUPPORT ANNUAL COST								40,625

MONITORING								
Sampling and Monitoring /yr	2		8	16	100	1,600		1,600
Maintenance Inspection /yr	2		8	16	100	1,600		1,600
Report Preparation /yr	1		60	60	100	6,000		6,000
ANL-W ADDER	30 %							2,760
MONITORING ANNUAL COST								11,960

5-Year Review Report								
Report Preparation by ANL-W	1		120	120	100	12,000	1,000	13,000
ANL-W ADDER	30 %							3,900
5-YEAR REPORT COST								16,900

100-YEAR LONG TERM COSTS								
WAG 9 Support (20 years)	20	40,625					812,500	812,500
Annual Cost (100 YRS)	100	11,960					1,196,000	1,196,000
5-Year Review Cost (20 TIMES)	20	16,900					338,000	338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS								2,346,500

DETAILED COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES
 Site ANL-35, North Ditch
 Alternative 4a, EXCAVATION AND DISPOSAL AT INEEL SOIL REPOSITORY

Date 9/4/97
 Prep'd By Scott Lee

DESCRIPTION	MATERIAL		UNIT LAB HRS	LABOR RATE	LABOR COST	MATERIAL COST	OTHER COST	TOTAL COST
	MATERIAL UNIT	MATERIAL COST						
CAPITAL COSTS								
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	3		20	75	4,500			4,500
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	15	100				1,500		1,500
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Excavation Permit	1		4	125	500			500
Waste Acceptance Report to LIMITCO	1		60	125	7,500			7,500
TOTAL TITLE DESIGN PACKAGE								18,250

CONSTRUCTION SUBCONTRACT	L=	W=	D=	CY=	TOTAL COST
Mob & Demobilization	1			10,000	10,000
Volume of Contaminated Soil				74.07	74.07
Soil Removal	74.07	75		5555.556	5555.556
Soil Transport to INEEL Repository	74.07	75		5555.556	5555.556
Tipping Fee LIMITCO/cy	74.07	15		1111.111	1111.111
Backfill Site to Grade	74.07	75		5555.556	5555.556
Revegetation (square feet)	2000	1		2000	2000

ACCESS RESTRICTION FENCING			
6' Security Fence - 1 Gate	NA		0
Surface Water Diversion	NA		0
TOTAL CONSTRUCTION			29,778

SUM CAPITAL COSTS			
Design & Construction Total			48,028
ANL-W ADDER	30 %		14,408
TOTAL CAPITAL COSTS 97 DOLLARS			62,436

OPERATIONS AND MAINTENANCE

WAG 9 Support			
20 years of ER Personnel	0.25	125,000	31,250
ANL-W ADDER	30 %		9,375
SUPPORT ANNUAL COST			40,625

MONITORING			
Sampling and Monitoring /yr	2	16	100
Maintenance Inspection /yr	2	16	100
Report Preparation /yr	1	60	100
ANL-W ADDER	30 %		2,760
MONITORING ANNUAL COST			11,960

5-Year Review Report			
Report Preparation by ANL-W	1	120	120
ANL-W ADDER	30 %		1,000
5-YEAR REPORT COST			13,000
			3,900
			16,900

100-YEAR LONG TERM COSTS			
WAG 9 Support (5 years)	5	40,625	203,125
Annual Cost (20 YRS)	20	11,960	239,200
5-Year Review Cost (20 TIMES)	20	16,900	338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS			780,325

DETAILED COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES
 Site ANL-35, North Ditch
 Alternative 4b. EXCAVATION AND DISPOSAL AT PRIVATE FACILITY

Date 9/4/97
 Prep'd By Scott Lee

DESCRIPTION	MATERIAL		UNIT LAB HRS	LABOR RATE	LABOR COST	LABOR COST	MATERIAL COST	OTHER COST	TOTAL COST
	MATERIAL UNIT	MATERIAL COST							
DESIGN PROCUREMENT PACKAGE									
Siting and Surveying	3		20	60	75	4,500			4,500
Final Design Bid Package	1		8	125	1,000	1,000			1,000
Safety Analysis Report	1		10	125	1,250	1,250			1,250
Verification sampling plan	1		8	125	1,000	1,000			1,000
Verification Sample Costs	15	100					1,500		1,500
Safe Work Permit	1		4	125	500	500			500
Radiation Work Permit	1		4	125	500	500			500
Excavation Permit	1		4	125	500	500			500
Waste Acceptance Report to LMITCO	1		60	125	7,500	7,500			7,500
TOTAL TITLE DESIGN PACKAGE									18,250

CONSTRUCTION SUBCONTRACT	L=	MATERIAL UNIT	W=	D=	CY=	MATERIAL COST	OTHER COST	TOTAL COST
CONSTRUCTION SUBCONTRACT								
Mob & Demobilization	1	10,000				10,000		10,000
Volume of Contaminated Soil		500					74.07	74.07
Soil Removal	74.07	75				5555.556		5555.556
Soil Transport to Rail Yard	74.07	75				5555.556		5555.556
Rail Transport Cost/ton	185.1852	10				1851.852		1851.852
Tipping Fee Private Co./cy	74.07	350				25925.93		25925.93
Backfill Site to Grade	74.07	75				5555.556		5555.556
Revegetation (square feet)	2000	1				2000		2000

ACCESS RESTRICTION FENCING					
6' Security Fence - 1 Gate	NA				0
Surface Water Diversion	NA				0
TOTAL CONSTRUCTION					56,444

SUM CAPITAL COSTS					
Design & Construction Total					74,694
ANL-W ADDER	30 %				22,408
TOTAL CAPITAL COSTS 97 DOLLARS					97,103

OPERATIONS AND MAINTENANCE

WAG 9 Support					
20 years of ER Personnel	0.25	125,000			31,250
ANL-W ADDER	30 %				9,375
SUPPORT ANNUAL COST					40,625

MONITORING					
Sampling and Monitoring /yr	2	8	16	100	1,600
Maintenance Inspection /yr	2	8	16	100	1,600
Report Preparation /yr	1	60	60	100	6,000
ANL-W ADDER	30 %				2,760
MONITORING ANNUAL COST					11,960

5-Year Review Report					
Report Preparation by ANL-W	1	120	120	100	12,000
ANL-W ADDER	30 %				1,000
5-YEAR REPORT COST					13,000
					3,900
					16,900

100-YEAR LONG TERM COSTS					
WAG 9 Support (5 years)	5	40,625			203,125
Annual Cost (20 YRS)	20	11,960			239,200
5-Year Review Cost (20 TIMES)	20	16,900			338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS					780,325

DETAILED COST ESTIMATE SHEET

Project OU 9-04 FS COST ESTIMATES
 Site ANL-35, North Ditch
 Alternative 5, PHYTOREMEDIATION

Date 9/4/97
 Prep'd By Scott Lee

DESCRIPTION	MAT'L		TOTAL LAB HRS	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
	MAT'L UNIT	UNIT COST						
CAPITAL COSTS								
DESIGN PROCUREMENT PACKAGE								
Siting and Surveying	1		16	75	1,200			1,200
Final Design Bid Package	1		8	125	1,000			1,000
Safety Analysis Report	1		10	125	1,250			1,250
Verification sampling plan	1		8	125	1,000			1,000
Verification Sample Costs	30	100				3,000		3,000
Safe Work Permit	1		4	125	500			500
Radiation Work Permit	1		4	125	500			500
Digging Permit	1		4	125	500			500
Waste Acceptance Report to LIMITCO	1		40	125	5,000			5,000
TOTAL TITLE DESIGN PACKAGE								13,950
PHYTO SUBCONTRACT								
Specialized Equipment one time cost	1	8,000				8,000		8,000
Volume of Contaminated Soil	L=	500	W=	4	D=	1	CY=	74.07
Prepare Soil for Planting			5	60	300			300
Planting/growing season			5	60	300			300
Irrigating/growing season			10	60	600			600
Fertilizer/growing season			2.5	60	150			150
Cutting/growing season			5	60	300			300
Bailing/growing season			5	60	300			300
Rad Survey/growing season			1.00	125	125			125
Transport to INEEL Incinerator/growing season			5.00	60	300			300
TOTAL FIRST YEAR PHYTO COSTS								10,375

ADDITIONAL FOUR YEAR PHYTO COSTS 4 9,500

ACCESS RESTRICTION FENCING

6' Security Fence - 1 Gate	NA	0
Surface Water Diversion	NA	0
TOTAL FIVE YEAR PHYTO		30,250

SUM CAPITAL COSTS

Design & Phyto Total		44,200
ANL-W ADDER	30 %	13,260
TOTAL CAPITAL COSTS 97 DOLLARS		57,460

OPERATIONS AND MAINTENANCE

WAG 9 Support

20 years of ER Personnel	0.25	125,000	31,250	31,250
ANL-W ADDER	30 %			9,375
SUPPORT ANNUAL COST				40,625

MONITORING

Sampling and Monitoring /yr	2	16	100	1,600	1,600
Maintenance Inspection /yr	2	16	100	1,600	1,600
Report Preparation /yr	1	60	100	6,000	6,000
ANL-W ADDER	30 %				2,760
MONITORING ANNUAL COST					11,960

5-Year Review Report

Report Preparation by ANL-W	1	120	100	12,000	1,000
ANL-W ADDER	30 %				3,900
5-YEAR REPORT COST					16,900

100-YEAR LONG TERM COSTS

WAG 9 Support (5 years)	5	40,625		203,125	203,125
Annual Cost (20 YRS)	20	11,960		239,200	239,200
5-Year Review Cost (20 TIMES)	20	16,900		338,000	338,000
TOTAL 100-YEAR OPERATIONS AND MAINTENANCE COSTS 98 DOLLARS					780,325